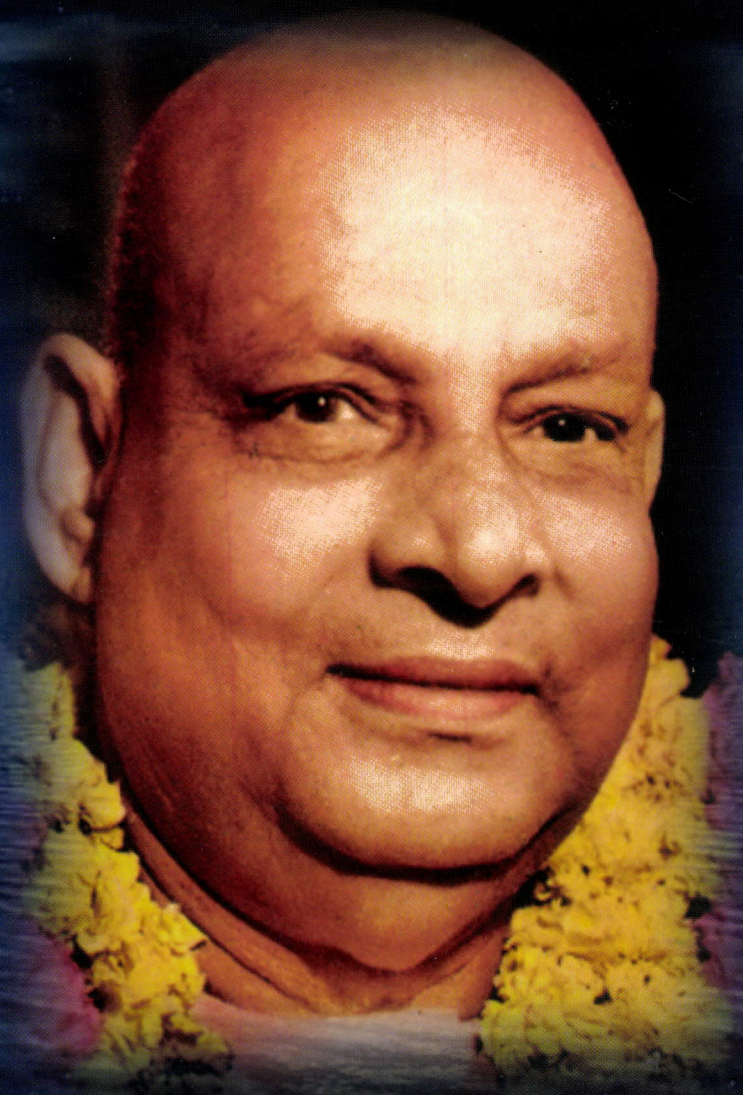


HOME NURSING



Swami Sivananda

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Sri Swami Sivananda



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Dedicated
TO
THE NISHKAMA KARMA YOGINS
WHO
ARE ENGAGED, DAY AND NIGHT,
IN SERVING THE SICK-NARAYANA

ॐ सहनाववतु, सहनौ भुनक्तु, सह वीर्यं करवावहै ।
तेजस्विनावधीतमस्तु, मा विद्विषावहै ॥
ॐ शान्तिः शान्तिः शान्तिः।

SRI SWAMI SIVANANDA

Born on the 8th September, 1887, in the illustrious family of Sage Appayya Dikshitar and several other renowned saints and savants, Sri Swami Sivananda had a natural flair for a life devoted to the study and practice of Vedanta. Added to this was an inborn eagerness to serve all and an innate feeling of unity with all mankind.

His passion for service drew him to the medical career; and soon he gravitated to where he thought that his service was most needed. Malaya claimed him. He had earlier been editing a health journal and wrote extensively on health problems. He discovered that people needed right knowledge most of all; dissemination of that knowledge he espoused as his own mission.

It was divine dispensation and the blessing of God upon mankind that the doctor of body and mind renounced his career and took to a life of renunciation to qualify for ministering to the soul of man. He settled down at Rishikesh in 1924, practised intense austerities and shone as a great Yogi, saint, sage and Jivanmukta.

In 1932 Swami Sivananda started the Sivanand-ashram. In 1936 was born The Divine Life Society. In 1948 the Yoga-Vedanta Forest Academy was organised. Dissemination of spiritual knowledge and training of people in Yoga and Vedanta were their aim and object. In 1950 Swamiji undertook a lightning tour of India and Ceylon. In 1953 Swamiji convened a 'World Parliament of Religions'. Swamiji is the author of over 300 volumes and has disciples all over the world, belonging to all nationalities, religions and creeds. To read Swamiji's works is to drink at the Fountain of Wisdom Supreme. On 14th July, 1963 Swamiji entered Mahasamadhi.

PROLEGOMENA

LIFE is a mystery. It is the one precious possession of all living beings. Great is the joy that one derives from it. But greater is the care that one exercises consciously or unconsciously, to maintain, sustain and preserve it, for nothing on earth can give one greater joy than the mere thought or feeling that one exists;—if life were not full of bliss, by itself, would anyone cling to it? So it behoves everyone of us to strive after various means of sustaining and prolonging life. That, medical science is aiming at sincerely.

Medical Science has, with the progress of human civilisation, made considerable progress towards the alleviation of the bodily ailments of all beings. Of that, it has made no secret. Without confining its precious findings to a limited circle of specialists, who have dedicated themselves exclusively to the pursuit of that science, it encouragingly impels even the laymen to become medical-minded and learn first-aid and nursing. By doing so, it has helped everyone of the millions of human beings to be of help to himself and to others in times of emergency.

In emergency, one cannot depend entirely upon the medical practitioners, for they may not be available at a moment's notice and that may endanger or snatch away life, the most precious thing. It may even so happen that no one is by one's side when one is injured. So one ought to learn what one has to do under such conditions, such that one may save oneself from grave disasters. Again, even if a doctor is available in times of emergency, some of the important medicines may not be within easy reach at that moment. So one should acquire a knowledge of the most often used patent drugs and keep them in his house. While going out on picnics, pilgrimage, etc., one can carry with oneself some of the most commonly used medicines. A common cold or head-ache or constipation or indigestion attended to immediately will save one from serious complications that may result.

As one wishes to prolong and sustain one's life and keep it free from ailments, etc., one should evince a great interest for safeguarding the life of others, for, verily, the world-play is maintained and social and universal progress and all-sided development achieved through mutual help, assistance and support. As one would wish one's relations or neighbours to attend upon oneself during periods of illness, etc., one should serve and help others in times of emergency; otherwise how will the others be inspired to nurse wholeheartedly when one is in danger? So, one should serve and nurse willingly and lovingly anyone, whosoever he may be, whether known or unknown.

Especially, more so in the case of babes and pregnant women. Babes cannot take care of themselves. Others should take every care possible to nourish and sustain the young ones properly and see, thereby, that they do not lose their valuable possession, life, for no fault of theirs; and this involves prenatal and postnatal maternal care and welfare. The pregnant woman carries in her womb a living being that cannot be produced in any of our laboratories. Because of her good health and personal care, the world is full of living beings. She safeguards within her womb the supreme possession of ours for a period of nine months. Should we not take care of her, nay, are we not bound to exercise every precaution and care to see her in ideal circumstances?

Hence it is asserted that every individual should possess a fundamental knowledge of first-aid and home nursing and be acquainted with the administration and use of various important medicines. That will not merely pave the way for material progress and happiness but also bless the earnest man with purity of mind that would enable him to attain immortality and perennial bliss, the supreme Goal of life.

Reiterating and stating the same in other words, no progress, whatsoever, is possible in the absence of selfless service and universal love. It is the true spirit of selfless service that manifests as ideal universal love; the same statement holds good *vice versa*. And no form of selfless service is greater than the aid and nursing extended to the ailing ones. That is why I

always insist on everyone including Sannyasins and hermits, becoming a qualified nurse.

I have already dealt with many aspects of the subject in all its details in my books 'Health and Long Life', 'Practice of Nature cure', 'Bazaar Drugs', etc. In this small book, entitled 'Home Nursing', I have given a few detailed instructions of basic importance.

In the opening chapter a brief introduction to the subject is given. The second chapter is of great importance. Doctors cannot remain always with the patients and a great majority of the public cannot afford to have paid nurses. In order to carry out the instructions of the doctor effectively, everyone in a family should be a nurse. And that means everyone should know how to carry out the instructions of the doctor and what he or she should do in the absence of the doctor. Hence the importance of the chapter. The succeeding six chapters also deal with more or less the same topic.

In chapter nine, poisons, along with their antidotes, are enumerated. Everyone should keep in his house the various antidotes mentioned in the chapter. A moment's delay in treating poisoning cases may mean loss of life. One cannot wait for the doctor to come. So everyone should keep in mind the entire chapter.

Chapters 10 to 14 deal with Home Hydrotherapy, hot-baths, fomentation, etc. The benefits that accrue from the possessing of a knowledge of these things are very well-known to all.

The maintenance of the general health of the family depends to a vast extent upon the cleanliness and quality of the food taken. That means the exercising of great caution and care in respect of the kitchen, the method of cooking and the preservation of cooked-food. All these items find a place in the fifteenth chapter of the book.

Chapters 16 to 20 deal with the feeding of the infants and the sick. In this connection, suffice it to say that these chapters are of utmost importance. Mere administration of medicines and careful nursing would be of no avail if the diet of the child or the patient is not properly attended to.

The simple household remedies mentioned in the 21st chapter will be needed daily by one or the other of the family members. So it would do good to keep them in the house. So too are the few formulae given in the next chapter.

Modern Drugs are mentioned in chapter 23. However, **these drugs should not be administered without the specific instructions of a qualified doctor** who has examined the patient. The time and mode of administration are given in order to help the nursing individual, if he should forget the oral instructions of the attending doctor. A knowledge of these drugs and their use would enable one to keep ready beforehand what the doctor would require.

The concluding chapter deals with maternity and child welfare. Only a brief account is given therein, since a detailed one would be a book by itself. The need for these two has already been detailed in the earlier portion of the present prolegomena.

Valuable information has also been appended to the present book.

May everyone become an ideal selfless worker and embodiment of pure, divine Love! May everyone serve the Lord actively, in His manifest aspect as the weak, the sick or the child! May you all attain Him through the practice of Home Nursing and First-aid!

Peace be unto all!

Swami Sivarama

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HOME NURSING

CHAPTER I

INTRODUCTION

A healthy man takes personal care of his body and of his bodily requirements. In disease he needs the service and assistance of others to take care of him. In other words he needs nursing.

Nursing of the patient is of the first and foremost importance in disease. When a disease manifests, the first thing to do is to take proper care of the diseased system. This is called nursing.

Nursing is more important than even the administration of medicine. By proper, careful and timely nursing that is efficiently done, much distress can be relieved and obstacles to rapid recovery removed. By careful, intelligent and judicious nursing, many lives can be saved. Many patients who suffer from serious diseases can be pulled round and made to convalesce quickly.

A nurse is one who has the care of an infant or of the sick. A nurse may be either a male or a female. Again, the father, the mother, the sister, the brother or the son can act as the nurse in tending the sick. The father or the mother or the son in the family will have to remain at the bedside of a sick person in the house and minister to his/her comfort. They should have a knowledge of home nursing.

Everyone of you should know the elementary rules of nursing. You must be prepared to help in the sickroom in emergency when trained nurses are not available. Home nursing is a part of Nishkama Karma Yoga, selfless service. It is a great purifier, joy giver, soul elevator and Moksha bestower. Attend any short course in 'Home Nursing and First Aid' and get a certificate.

Everyone of you should know how to take temperature and record it in the chart, to give enema, sponge bath, sitz-bath, etc., to prepare easy mixtures, powders, ointments

and lotions, to disinfect a room, to examine urine for sugar, albumen, etc., and put on bandages, slings, etc. You must be able to report all symptoms to the doctor and leave him free to draw his own conclusions. You should use your five senses to detect anything that can add to your knowledge of the case. The more minute the observations, the better the help you can give.

You must note down in writing the quality, quantity and type of the food taken by the patient and the time at which it is taken. You must see that the excretions are preserved or measured, as directed. You must note the periods of sleep, the expressions of the patient, any change in his appearance or demeanour. You must keep a temperature chart.

Nursing needs an elaborate training. A nurse should possess an elementary knowledge of anatomy, physiology, hygiene, medicine, drugs, etc. She should know how to take the temperature, give enema, fomentation, cold compress, cold pack, sponging, etc., how to pass a catheter, cup the loins, disinfect the clothings, etc. She should know how to feed a patient, how to give rectal feeding, how to wash the stomach, etc. She should have a full knowledge of massage and first aid and of weights and measures. She should have a knowledge of antinatal, and postnatal treatment; she should be able to take care of pregnant women, women in confinement, nursing mothers and newborn babies.

A nurse should have some knowledge of home remedies. She is a doctor also. During the absence of the doctor, she can intelligently carry out the directions of the doctor and take care of the patient. The success of a surgeon in the operation theatre mainly depends upon the skill and dexterity of the sister-nurse who selects instruments for the surgeon.

Every member of a family should have a practical knowledge of home nursing and first aid. You can save the doctor's bills, thereby. You can give comfort to any member of your family when he or she is in distress. When his life is in jeopardy, you can save him. You can serve your neighbour, your friend,

your relative, the poor and the sick and thus purify your heart for the reception of divine light and divine grace.

The greatest Nurse, the supreme Nurse of nurses, is Mother Para Sakti. She nourishes and takes care of all creatures in the universe. All glory to this Divine Nurse! May Her blessings be upon you all!

CHAPTER II

DUTIES OF A NURSE

A nurse should note the following in connection with her patient.

PAIN

The extent of pain, locality and duration, and character of pain should be noted; whether dull and constant, sharp, shooting, occurring in paroxysm, etc.

TONGUE

Whether the tongue is dry, moist, or furred, and nature, colour and extent of the fur on it; the way in which the patient puts out his tongue when asked, whether in a straight line or inclined to one side as in cases of partial paralysis.

TEMPERATURE

She should accurately note the temperature by means of a clinical thermometer at the regular periods stated by the doctor. After use, the thermometer should be well washed. It should be kept in a small bottle of carbolic lotion, 1 to 20, containing a small piece of cotton at the bottom. This is a prevention against possible breakage.

Temperature, pulse and respiration give most important indications. Inflammation and infection raise the temperature. The condition of the patient can be known from the reading of temperature. Temperature is a general measure of toxicity. It has a special meaning with reference to each particular disease. The temperature is found out by means of a clinical thermometer. Before a thermometer can be used, the mercury must be shaken down to register below 97 degrees. With sharp downward flicks of the wrist, the mercury thread is shaken down and the thermometer is ready for use now.

You can take the temperature in the mouth. Keep the thermometer under the tongue. Ask the patient to close the lips on it to hold it in place. Let him not bite it, as it may easily break in the

mouth. Retain the thermometer in the mouth for one or two minutes. Take the pulse-rate when you take the temperature. You can take the temperature in the arm pit and groin. Place the thermometer in the groin. Bulb down and bend the leg up to keep it in contact with the flesh.

The most accurate temperature recording is in the rectum. This is useful in babies and young children. Lubricate the thermometer with vaseline and insert the bulb of the thermometer into the rectum. Keep it there for one or two minutes.

If a thermometer is not available a nurse should be able to judge about the temperature by placing his or her palm on the unexposed skin.

PULSE

Pulse is the beating of the heart conveyed to the arteries. As the heart beats, so the arteries pulsate. Pulse indicates the condition of the flow of blood, its volume and pressure. It also indicates the number of times the heart is beating.

The pulse is usually taken at the wrist by placing two or three fingers on the radial artery. The arm should not be bent at the elbow when taking it. Another place for taking the pulse is the temporal artery in front of the ear. If you find it difficult to take the pulse at the wrist, you may count the patient's heart beats by placing your hand on the chest, just below and internal to the left nipple. Note the frequency, size, compressibility and regularity of the pulse. A rise of temperature quickens the heart and raises the number of pulse-beats. A lowering of temperature slows down the heartbeat. Pulse should be counted for at least half a minute. In cases of irregularity it should be counted for a full minute.

In health the normal pulse rate is 72 per minute in an adult. In infants its rate is about 120 per minute. It is more rapid in a patient standing than lying down. The pulse rate increases in any fever by about ten beats per minute for each degree rise in temperature. The healthy pulse is usually regular.

When you take the pulse, the hand of the patient should rest on the bed or any other support, palm upwards.

It is a very difficult art to feel the pulse accurately and to interpret the meaning of the observation. This cannot be taught

through a book. Experience combined with guidance of an experienced doctor will be the best teacher.

Pressure is found with the help of an instrument called sphygmometer. The sphygmometer gives reading of maximum pressures as also of the minimum pressure.

RESPIRATION

The nurse should note the character and frequency of the respiration. She should note whether the respirations are noisy or quiet, shallow or deep, regular or irregular.

The breathing rate quickens in any fever. This condition is particularly marked if the fever chiefly affects the lungs, as in the case of pneumonia. The inspiration and expiration may be unduly prolonged. Prolonged inspiration is associated with laryngeal or tracheal diseases and prolonged expiration is commonly associated with bronchial and pulmonary diseases.

To every few beats of pulse one breath is taken normally. Pulse respiration ratio is 4:1 (72:18). An increase of temperature by one degree above the normal corresponds to an increase of 10 beats of pulse and of 2 or 3 respirations per minute. The number of respirations per minute in a normal, healthy adult is from 14 to 18. The pulse in a healthy adult is 72. The ratio between respiration and pulse is 1:4. In pneumonia the number of respirations increases to 70 or 80. In fever the pulse beat increases. The pulse of a new born babe is 140 per minute. It gradually diminishes with advancing age.

STOOLS

The nurse should note the frequency, amount and general character of the motions, their colour, odour, consistency, size, whether normal or containing blood, pus or mucus or undigested food and whether the patient experiences any pain in passing them. The amount of stools generally is 4 to 8 ounces daily according to the constitution of the individual and his diet. A special term "pea-soup" stool is used for the characteristic stool of typhoid. The watery stool of cholera is termed "rice-water" stool.

URINE

Urine gives indication of the condition of health.

Note the frequency, quantity, colour, smell, deposit, specific gravity and also if the patient is experiencing any pain in passing it. The usual quantity passed is about 2½ pints in twenty four hours.

Urine is of straw colour normally. It is normally acidic. In diabetes and chronic kidney diseases the quantity increases.

If the patient is unable to pass urine, first try the effect of heat over the lower part of the body. Place a hot water bottle over the lower part of the abdomen. If this fails, give a hot bath.

If this also fails, use the catheter. Sterilise the catheter by boiling it for 10 minutes in clean water. Lubricate the catheter with liquid paraffin or vaseline.

LIPS AND MOUTH

Note whether the lips are moist, dry or cracked, whether the gums are spongy, whether there is an increase in saliva.

SKIN

The nurse will have to note whether the skin is normal, soft, elastic or rough, dry, or moist, whether there is profuse perspiration or not, whether it is hypersensitive or devoid of sensibility, whether there are pigmentations or eruptions.

EARS

The nurse should note whether there is any pain or discharge, whether there is ringing noises in the ears, whether there is escape of any blood or clear fluid from the ears, whether there is tenderness and pain in the bone behind the ear when there is discharge from the ear.

EYES

The nurse should note whether there is redness of the conjunctiva or lids, whether there is increased lachrymation, discharge or pain, whether there is any irregularity in the size of the pupil, whether there is sensitiveness or the reverse to light.

NOSE

She should note whether there is profuse discharge from the nose, a tendency to snore indicating some obstruction as in adenoids, whether there is dilation of the nostrils when the breathing is difficult as in pneumonia.

APPETITE

Food should be given at regular intervals and in quantities prescribed by the doctor. Food should not be given whenever the patient asks for it.

She should keep a record of the amount of food taken in the twenty four hours. She should also note whether there is flatulence or wind in the bowels, retching or pain after taking food. She should also find out whether the patient digests the food or not, judging by the appearance of his stools.

SLEEP

The nurse will have to note the extent and nature of sleep, whether long, continued or occurring in snatches quiet or restless or delirious.

WEIGHT

In all cases of wasting diseases, such as phthisis and cancer, the weight of the patient should be taken. The patient should be weighed at the same hour on each occasion and in the same clothes. His weight should be noted down on the temperatures chart.

COUGH AND SPUTUM

The nurse should note whether the cough is dry, moist, frequent or occasional, and whether accompanied or not by sputum or phlegm, whether the patient experiences pain when coughing, whether the cough occurs in paroxysms, ending perhaps in vomiting as in whooping cough. The sputum must be kept for the doctor's examination. She must note down the colour and consistency of the sputum, whether it is white, frothy, thick and yellow, sticky, offensive, etc.

VOMIT

The nurse should note whether vomiting comes immediately after food or how long after taking food, whether it is preceded by flatulence or pain, whether the vomit contains undigested food or blood, whether the blood is bright or like "coffee grounds."

PATIENT'S POSITION IN BED

The nurse should note whether the patient is quiet or restless, whether he prefers to lie with his knees drawn up, whether he has a preference for lying on any particular side as in pleurisy and pneumonia, when usually the affected side is chosen. Difficulty in breathing will make him want to sit up as in asthma.

EXPRESSION OF FACE

The nurse should note the expression of face of the patient, whether he is flushed or pale, whether he has an anxious look.

The temperature, pulse, respiration, urine and stools of a patient should be carefully noted on the temperature chart, which should be a twice daily or four hourly one.

TO NURSES AND DOCTORS

1. Be good. Do good.
2. Be kind, be compassionate.
3. Be sincere, be honest, be truthful.
4. Never show irritation to the patients.
5. Never use harsh words to the patients.
6. Be soft, be gentle, be elegant.
7. Do not make thoughtless remarks.
8. Evince a sincere interest in the patient's welfare.
9. Create faith and confidence in the patient.
10. Always cheer up the patient, encourage.
11. Use a soft, clear, low voice.
12. Do not frighten the patient.
13. Know the power of suggestions.
Do not give negative suggestions.
14. Give personal, individual attention.
15. Be friendly.
16. Hurt not the patient's feelings, sentiments.
17. Give assurance to the patients.
18. Guard your tongue.

19. Do not lie or deceive.
20. Do not give thoughtless advice.
21. Do not injure a patient's self-respect.
22. Adapt, adjust and accommodate to the patient.
23. Bear insult, bear injury.
24. Learn to compromise.
25. Arouse interest.
26. Attend to trifles.
27. Watch the patient, his symptoms.
28. Attend to his personal hygiene.
29. Keep the patient neat and tidy.
30. Avoid long conversation.
31. Control anger through Kshama (forgiveness),
love and prayer.
32. Love all; serve all; serve the Lord in all.
33. Feel that the patient is Lord Hari.
34. Be regular in your Japa, study of sacred scriptures,
Kirtan, prayer and meditation.
35. Realise God through selfless service to the patients.
36. Here is a great field for your God-realisation.

TO THE FIRST AIDER

1. Pray before you start your work. Be courageous. Be calm. Be cool. Be collective. Be not confused.
2. Do not move a patient who has shock.
3. Do not allow the patient to see his wound or injury.
4. Allow a flow of fresh air for the injured patient. Keep the crowd at a distance.
5. Prevent excessive loss of blood. Treat the shock first. If there is stoppage of breathing, try to restore breathing.
6. Do not handle fractures roughly.
7. Do not give any liquid or food when the patient is unconscious.

8. Do not give alcohol in case of bleeding. It will increase bleeding.

9. Apply splints to fractured limb before you remove a patient.

CHAPTER III

GENERAL INSTRUCTIONS

There should be absolute quiet in the sick room. None but the attendants should enter the room. Any exciting talk does harm to the patient. All unnecessary noise both inside and outside the room should be avoided. Felt slippers should be worn. People should not speak in whispers nor walk about on tip-toe.

Draughts should be avoided, but there should be good ventilation in the room. All unnecessary furniture should be removed. The purity of the sick room may be judged by noticing whether there is any perceptible odour on entering the room. Place a wide-mouthed bottle for some hours and then pour a little clear lime water into it and shake. If the air is impure, the fluid will become more or less milky in appearance. A pink solution of potassium permanganate in distilled water will turn brown or lose its colour in impure air.

The windows should be kept open; fresh air should be allowed free access to the room. The floor should be washed daily. A little phenyl should be put in the water used for washing the room.

The clothes should always be light, clean and loose. Tight clothing must be avoided. The bedding should be put in the sun daily. The bed-sheets should be scrupulously clean, and regularly changed. A patient should always remain in a raised cot. This gives a current of air above and below the patient. Moreover the room can be cleaned nicely. Also, insects will not creep into the bed.

There should be daily sponging of the whole body of the patient with warm water and soap. Attention must be paid to the mouth and teeth. The mouth should be kept very clean. Potassium permanganate gargle may be given twice or thrice daily. A good tooth-powder or paste may be used twice daily.

The strength of the patient should be saved. If he is sleeping, do not wake him up for taking medicine. Do not allow him to exert himself or to excite himself unnecessarily. If a patient is

weak or if he has been in bed for a long time on account of protracted ailment he may faint when raised up suddenly into an erect position; hence, do not raise such patients. When you give sponging or bath do not tire a patient, do not expose him to chill. Change the bed or clothing of helpless weak patients at a time when they are least exhausted, say, an hour after food. This should be done without raising the patient.

When you feed helpless patients, when you give medicine to them, slightly and gently raise the head and the upper part of the body. Always use a feeding cup for giving fluids. If you have no feeding cup, use a spoon, glass or a mug. The food for the invalids should be properly and carefully prepared and given at stated intervals. Medicine also should be given in right quantity at the time stated. Do not pour anything into the mouth of a man when he is in an unconscious state; the liquid may enter into the wind-pipe and cause choking and death at once.

Take the temperature in the mouth. Insert the thermometer under the tongue and close the lips. If the patient is delirious, take the temperature in the arm-pit; dry the arm-pit previously. In the case of very small children, take the temperature in the rectum. Leave the thermometer in position for one minute. (Note to clean the thermometer first with water and reduce the mercury down). The normal mouth temperature is 98.4 deg. F. 97 deg. F. is sub-normal; 95 deg. is collapse. 100 or 101 deg. F. is moderate fever. 104 or 105 deg. is high fever. Above 106 deg. F. it is hyperpyrexia. In sunstroke the temperature runs to 106 or even 108 deg. Over 107 deg. there is great danger. Few cases have survived a temperature of 109 deg. In such cases sponging is done with ice-cold water. Typhoid cases with 104 to 105 deg. need frequent sponging.

Sponging is a method of lowering the temperature. Place a thick bathing towel under the patient. Remove the clothing. Take a sponge or turkish towel. Dip it in a basin of ice-cold water and then wring it out. Sponge the chest, abdomen and the limbs for ten minutes. Then carefully turn the patient on the side and sponge the back. Then dry the parts. The temperature will fall down.

A patient may need sponging, wet-pack, hot foot-bath or sitz bath, cold compress or hot compress. His stomach may

need washing out. He may need an enema or rectal feeding, or rectal saline injections. He may need poultice or inhalation or fumigation. He may need an ointment or lotion or an anodyne to stop pain; he may need massage. The nurse should be able to meet these needs.

In bed cases, use bedpan with great care, with as little disturbance as possible to the patient. Lift the patient gently when you use the circular bedpan. If you use the slipper bedpan raise the patient at one side and introduce the thin end under the buttocks. Place a pad of old linen or cotton wool on the edge of the pan under the back to soak up any excretion and to prevent irritation, or soiling of the sink.

Bedpan should be placed under the patient with the greatest care so as to avoid injury to the back and the buttocks. Bedpan should be kept scrupulously clean. The disposal of the contents of the bedpan is of very great importance in cases of typhoid fever. They should be mixed with sawdust and burnt after being treated with phenyl lotion. They can be buried in a safe distant place also.

When water is injected into the rectum, it is called an enema. Plain water or soap-water at the body temperature should be used. The tube attached to the can should be fitted with a rectal nozzle and all air in it should be let out before introducing the nozzle into the rectum. Raise the can two or three feet above the level of the bed. Lubricate the nozzle with soap, vaseline or any oil. The patient should lie on his left side with the knees drawn up. Buttocks should be raised. You can send inside the bowel one or two pints of warm water.

Never take food or drink in the sick room. Never take food without washing the hands in soap and water and rinsing in an antiseptic lotion. Always wash your hands with an antiseptic lotion after handling bed-pans, etc.

You will have to obtain a knowledge of weights and measures and some simple household remedies.

CHAPTER IV

THE SICK ROOM

The first principle in caring for the sick is strict attention to the cleanliness of not only the patient but to the room he occupies and his immediate surroundings.

The sick room should obviously be in the quietest part of the house. Choose the coolest room. The best room in the house should be given to the sick. All extra furniture should be removed. The walls should be swept free from dust. They should be white-washed. The floor should be clean. It should be a well-ventilated room with good light. The room should be lofty and high, admitting as much air as possible. In cases of infectious diseases all hangings, carpets and curtains should be removed. There should be an adjoining verandah. This will prevent contact with the direct rays of the sun. The room should look to the south or south-west, because from these directions plenty of sunshine enters in. The sunshine makes the room warm and pleasant. Only in summer a northern aspect should be chosen. The sick room should be as much cut off from the general household as possible. Good drainage is of the utmost importance.

There should not be any stuffy smell in the room.

With the patient's bed there should be a small bedside table, a chair on one side, and an easy-chair on the other. There should be a screen between the patient and the door in case of draughts. This is all that is necessary in most cases.

The lamp should be behind the head of the bed. It should not shine into the patient's eyes. It should be shaded.

A knowledge of sickroom cooking is essential for one who nurses a patient. The nurse should be able to prepare digestive foods such as peptonised milk, etc.

Gossip of all kinds should be avoided in the sick room. A nurse should be even tempered. She should speak very

pleasing words to the patient. She should cheer him up and encourage him at all times.

THE SICK BED

A single bed is the easiest for nursing because the patient can be approached equally easily from both sides. If the bed is too wide, it will be impossible to nurse the patient, to change the sheets, or to attend to helpless cases with any degree of comfort. For bedridden cases a high bedstead is less tiring for the nurse. An ordinary bedstead may be used and raised to a suitable height by the use of four wooden blocks with a circular depression in the centre, large enough to hold the legs of the bed.

In the case of poor people in villages, the bed should be on a charpoy. A bamboo charpoy also can be made. The floor should be rendered clean with earth and cow-dung.

A mattress may be improvised. Two thick sheets of cotton are to be sewn together making a casing. It should be filled with clean straw. The end of the case should remain open. You can put one or two stitches. The contents may be taken out on soiling of the bed and renewed. A sheet should be placed over the mattress. A pillow may be made of clean, dry straw in the same way.

A horsehair mattress is a desirable one in winter.

A piece of matting over the quilt on the bed gives great comfort.

A mackintosh sheet may be put over the usual linen or cotton undersheet, if there is risk of soiling.

The patient should not be disturbed when you change the sheets. Let the patient lie on one side. Roll the old bed sheet. Place the fresh one in its place on the unoccupied half. Turn the patient on the fresh sheet. Then adjust the sheet properly on the other side.

PREVENTION OF BED SORES

The position of the patient should be changed from one side to the other frequently. Lying in the same posture for any length of time will cause bed sores.

The sites where sores commonly form are where the bones show plainly through the skin in the lower part of the

back, on the heels, on the haunch, on the ankle, on the elbows, or on the shoulder blades. At first, for one or two days, there is redness of the skin which quickly turns blue and dusky. Then a black slough forms and comes away, leaving a raw surface which, if not carefully treated, widens.

Once the bed sores form, it is difficult to heal them or check them. It is always better to prevent the formation of bed sores.

Change the patient's position several times during day and night. Keep the skin scrupulously clean.

Rub the parts that are subjected to pressure with methylated spirit. Spirit lotion hardens the part. Rubbing the part with catechu also hardens the part. Catechu tans the surface of the skin.

Afterwards boric acid or talcum powder should be dusted freely on places of contact. When redness is seen on the skin, pad should be used to keep off pressure on the part affected.

Put the patient on a soft bed without any crease. Remove bread crumbs, etc, from the bed frequently.

When a sore is actually forming, clean it daily with dettol or any antiseptic lotion and dress it with boric ointment. You can use solution of neem leaves also for washing. This also is a very good antiseptic.

BED PAN

When the patient is not able to get out of the bed, the nurse should insist on the use of the bedpan. The strength and energy of the patient can be saved by using the bedpan.

The patient should draw his knees up, in bed by supporting himself on his heels and elbows. In this position he can raise himself up sufficiently and the bedpan can be easily placed under him. In helpless cases the nurse should get some assistance to raise him.

Place a pad of cotton or folded linen over the thin end of the pan. This will make the patient more comfortable.

When you remove the bedpan you should not drag it away. If you drag the bedpan, it will produce bedsores.

In cold weather heat the bedpan by immersing it in hot water.

In cases of excessive perspiration slightly oil the portion that will come in contact with the patient. This is a precaution against bedsores.

The patient should not remain on the bedpan longer than is absolutely necessary.

The bedpan should be washed with a boiling-hot solution of soda once daily in order to keep it perfectly clean.

CHAPTER V

PRACTICAL INSTRUCTIONS

Method of Carrying a Patient

CRADLE

(If only one bearer is available)

Lift the patient by passing one of your arms beneath his two knees and the other round his neck. This method is suitable only in the case of children or light patients.

HUMAN CRUTCH

Stand at the injured side of the patient. Put your arm around his waist. Grasp the clothing at his hip. Place his arm around your neck. Hold his hand with your free hand.

THE TWO-HANDED SEAT

This seat is used mostly to carry a patient who is not able to assist the bearers by using his arms. Two bearers face each other and stoop (not kneel), one on each side of the patient. Each bearer passes his forearm, nearest to the patient's head, under his back just below the shoulders. If it is possible he takes hold of the patient's clothings.

They now slightly raise the patient's back and then pass their other forearms under the middle of his thighs and clasp their hands, the bearer on the left of the patient with his palm upwards and holding a folded handkerchief to prevent hurting by the finger nails; the bearer on the right of the patient with his palm downwards. Now the bearers get up together and move, the right hand bearer with the right foot and the left hand bearer with the left foot.

When a patient is carried by hand seats, the bearers walk with the cross-over step and not by side paces.

THE THREE-HANDED SEAT

This seat is used for carrying a patient and supporting either of his lower limbs when he is able to use one or both arms.

Two bearers face each other behind the patient. For supporting the left limb the bearer on the patient's right grasps the lower end of his own left forearm with his right hand and the lower end of the other bearer's right forearm with his left hand. The bearer on the left takes hold of the lower end of the first bearer's right forearm with his right hand. This leaves his left hand free to support the patient's left leg.

For the patient's right lower limb substitute "right" for "left" and "left" for "right". If the left leg is injured the bearer on the sound side grasps the lower end of his left forearm; if the right leg is injured, he grasps the lower end of his right forearm. The bearers stoop down.

The patient places one arm around the neck of each bearer. He may raise himself to sit on their hands and steady himself during the transport.

The bearers now rise together. They step off, the right hand bearer with the right foot and the left hand bearer with the left foot.

THE FOUR-HANDED SEAT

This seat is used when the patient can assist the bearers by using one or both arms.

Two bearers face each other behind the patient. They grasp their left wrists with their right hands and each other's right wrists with their left hands. The patient places one arm round the neck of each bearer and raises himself to sit on their hands and steadies himself during transport. Now the bearers rise together and step off, the bearer on the right hand side of the patient with the right foot, and the left hand bearer with the left foot.

CATHETERISATION ON FEMALE PATIENTS

Urethral catheters are made differently for male and female patients. Female catheters are short and almost straight. They are made either of glass or metal. Male catheters are longer than female catheters as the male urethra is from 7 to 9 inches long. The non-flexible ones are curved. Male catheters are

made in metal and composition rubber which is hard but flexible.

The sterilization of catheters is of the utmost importance, as otherwise pathogenic organisms may be introduced into the urinary bladder and cause cystitis. Rubber, glass and metal catheters should be boiled for 20 minutes. Place the glass catheter in cool water, bring it slowly to the boiling point and allow it to boil for 20 minutes.

Gum-elastic or rubber catheters may be immersed in a strong disinfectant solution such as 1-20 carbolic lotion or 1-1000 per chloride of mercury for 30 minutes. They should be carefully rinsed in sterile water, or normal saline before use.

The patient lies on her back, with her legs drawn up and knees separated. Place a basin between her knees on the bed to catch the urine.

Wash your hands; separate the labia and wash the parts round the urinary opening with an antiseptic lotion. Then keeping the labia separated with the thumb and forefingers of your left hand introduce the end of the catheter into the urinary opening with your right hand. Allow the urine to flow into the basin on the bed. Gently press over the bladder in the end. This will help the complete evacuation of the urine.

If the end of the catheter touches anything such as the bed clothes or the surrounding skin, it should be reboiled before being used.

If you use a rubber catheter, lubricate it with some sterilised oil. If the urine ceases to flow before the bladder is empty, slightly withdraw the catheter and then replace it. If you use glass or metal catheters, attach a short rubber tubing to the end to guide the flow of urine into the basin. This will prevent the urine from dribbling down the sides of the catheter.

When you remove the catheter, pinch the tubing with the right hand or stop up its orifice or opening with the forefinger. This will prevent the urine left in it at the moment of removal from soiling the bed clothes.

CUPPING

Cupping is a method of abstracting blood or other fluid locally. It is mostly used to reduce the congestion of the kidney and of the breast.

Cleanse the area to be cupped with a dry cotton pad and apply a little soft paraffin or oil.

Put a little cotton or a little blotting paper just soaked in methylated spirit at the bottom of the cupping glass. Moisten the edge of the glass with oil. Moisten the inside of the glass with spirit. Light the paper, quickly invert the glass over the part and press it firmly against the skin. The closure of the glass extinguishes the flame and a partial vacuum is formed and the skin rises inside the glass.

Please take care that no burning spirit drops down while applying the cup.

Keep the cup in position for 20 minutes and then remove. Too much spirit should not be used on the paper.

To remove the cup never try to draw out the glass as a whole. Raise one edge by firmly depressing the skin with the left thumb and holding the glass slanted with another. The cup can be removed easily as soon as some air enters inside.

If you want to do the cupping again, do not apply the cup over the same place, but a little away from it. You can apply hot fomentation as many times as may be required over a cupped area.

Wet cupping is done similarly, but before applying the glass small incisions are made in the skin with a scalpel or with a special sacrificater.

WASHING OUT THE STOMACH

This is done through the stomach tube. Washing out the stomach is called lavage. The stomach tube is generally used in cases of poisoning, and in diseases of the stomach such as dyspepsia and dilation of the stomach.

The stomach tube is a long piece of rubber tubing with one end round and perforated at several places and a funnel like cup at the other end.

Sterilise the tube by boiling. Lubricate it with sterilized soft paraffin or olive oil or cocoanut oil.

Ask the patient to open his mouth, or use a piece of thick wood as a mouth opener by putting it in between his teeth. Ask

the patient to swallow the perforated tube straight, or carefully force it through the gullet till it reaches the bottom of the stomach. Continue the washing of the stomach by syphon action till the fluid administered returns clear.

A stomach tube may be improvised from an ordinary thin rubber tubing 4 feet long and of about half an inch outer diameter. Make a few slots at one end, the stomach end. Attach a glass funnel to the other end.

Pass into the mouth about 18 inches of the tube. Let the remainder remain outside. Lubricate the end with a little butter. Pass the tube backwards against the roof of the mouth, following the curve of the palate into the gullet and then into the stomach. Ask the patient to swallow the tube.

Use warm water containing 1 grain of sodium bicarbonate to 1 ounce of water to wash the stomach. Pour the water into the funnel. After each half pint or one pint lower the funnel so that the stomach contents will flow thereupon into a bowl placed on the floor.

A similar procedure is employed when it is desired to feed the patient by such a tube. The milk or prepared food is poured into the stomach by the funnel and left in.

In the feeding of children with severe sore throat, or diphtheria when food cannot be swallowed, pass a thin tube, such as a rubber catheter down the nose into the stomach and pour in the milk in this way.

Before introducing a stomach tube into the patient's stomach, practise by trying to fill and empty an ordinary bottle with the aid of the tube. Place the bottle on a stool, pour enough liquid in the funnel. When the bottle is quite full, press the tube to stop the flow and quickly invert the funnel and lower it to reach below the level of the bottle. The liquid from the bottle then will begin to flow into the basin kept below for receiving the emptied liquid. Practise this several times.

CHAPTER VI

DISINFECTION AND STERILISATION

Disinfection means destruction of the specific germs of infectious diseases and their spores. Disinfectants or germicides are substances which destroy the germs which cause communicable diseases and prevent them from spreading.

Some chemical agents like boric acid, lime, etc., merely restrain the growth of disease germs but do not destroy them. These are called antiseptics

Deodorants oxidise products of decomposition and absorb or destroy bad odours. They fail as disinfectants. They simply conceal smells. They only act by overpowering one odour by the substitution of another. They are pleasant as deodorisers. Charcoal, camphor, condy's fluid, potassium permanganate, eucalyptus, tar, vinegar, acetic acid, ammonia, etc., are deodorants.

There are some agents which act both as deodorants and as disinfectants. Condy's fluid, carbolic acid, chloride of aluminous, nitrate of lead, izal are examples.

Fresh air and sunlight are the best natural disinfectants. They kill most germs. Sunlight is a potent germicide. The blue-violet or ultra-violet rays are powerful disinfectants. Direct sunlight will kill typhoid germs within half an hour. Tubercle bacilli are killed by the sunlight within a few minutes.

Disinfection is done in three different ways (1) by fumigation, (2) by the use of chemical, (3) by heat.

FUMIGATION

Fumigation with sulphur is largely employed in India. This is an important method for disinfecting rooms, out houses, railway carriages. The doors and windows should be closed. Joints and window cracks should be sealed with paper. The doors should not be opened until after at least six hours. Formaldehyde, chlorine gas and carbolic acid vapour also have been used.

CHEMICAL DISINFECTANTS

An efficient disinfectant must be a powerful germicide. It should not have any injuring effects on human tissues and material submitted for disinfection. It should possess great power of penetration. It should neither be toxic nor caustic. An ideal disinfectant is not known.

CARBOLIC ACID

In the pure state it is a white or pinkish crystalline solid. The commercial acid is a thin tarry liquid. When the commercial acid is diluted with 5 parts of water, it may be used for washing furniture. It may be put in water in the proportion of half a pound to the gallon. This solution is used for steeping infected clothing. The solution is used in vessels for receiving the discharges of the sick. It is also useful for disinfecting urinals, latrine etc.

LIME

This is one of the cheapest and powerful disinfectant. Quick lime freshly burnt must be used. It can be used to purify water, to disinfect stools, floor, etc. One part of small pieces of quick lime is added to two parts of water. One pint of this solution is added to a gallon of water. This milk of lime is used for disinfection.

COAL TAR DISINFECTANTS

The coal tar disinfectants are fifteen times more powerful than carbolic acid. They are cheaper and less poisonous. Phenol, phenyl, Izal, Cyllin, Hycol, Creolin, Lysol are all coal tar preparations. They are efficient disinfectants.

POTASSIUM PERMANGANATE

It is a powerful oxidising agent. This is useful for the cleansing of cooking vessels and plates. Raw vegetables, salads, etc., should be washed in permanganate solution before being eaten raw. It is largely used for wells.

FORMALDEHYDE

This is used as a vapour. This is a powerful disinfectant. It has a greater power of penetration. It does not bleach textiles or act on metals. Formaldehyde vapour is useful for disinfecting delicate articles such as fur, books, brushes, combs, woollen

articles, etc. After fumigation all the doors and windows should be opened out to allow the gas to pass away.

FORMALIN SPRAY

This is a valuable disinfectant. It is useful for disinfecting cabinets, water closets, ward robes, etc.

HEAT

Heat is the best disinfectant. All clothing and bedding can be disinfected by heat. Boiling in water destroys all germs. Steam disinfections are highly useful. These are large air tight metal chambers. The articles are put in them. Steam is then forced into them under pressure till it permeates all the articles. Then steam is withdrawn. The articles are allowed to dry in the heat of the chamber. Then they are taken out. Now they are sterile and dry.

Chlorine kills germs within five minutes. Spores are killed within one hour. Chlorine is usually used in the form of chlorinated lime or bleaching powder. Bleaching powder is used for disinfecting rooms. Chlorine is liberated by the action of an acid (dilute sulphuric acid) on bleaching powder. When bleaching powder is moistened with water in a saucer chlorine is liberated in small quantities. Shut all doors, windows and ventilators when you disinfect a room.

Useless clothing and articles of little value used by patients should be immediately burnt. Other clothings should be immersed in a solution of corrosive sublimate (1 to 3000) or carbolic lotion for 3 hours. Then they should be boiled for an hour in clean water. Afterwards they should be thoroughly washed with soap and then exposed for three days to the sun and air. If disinfectants are not available, the time of boiling and exposure to the sun and air should be doubled.

All furniture should be well scrubbed with soft soap and hot water or washed with a mercuric chloride solution 1 in 1000 or chloride of lime 1 in 100. The walls should be treated similarly. Spraying with a hand pump or bamboo syringes will suffice.

STERILISATION

Germs are prevalent everywhere. It is therefore important that we should understand how to keep the fresh wound or injury

free from germs. If this is not done, septic condition or pus formation will take place. One can guard against this by keeping one's hands perfectly clean, washing the wounds with antiseptics like tincture iodine and dressing them with a sterilised dressing.

Absolute sterilisation of the hands cannot be obtained. Nails can be cut sufficiently short to ward off the dirt lurking in the nails. Hands and forearms can be thoroughly soaped and brushed and dried with methylated spirit.

The common chemical compounds found effective in killing germs without irritating the body are iodine, phenol, cresols, potassium permanganate, bichloride of mercury, dettol, etc. They are used in the form of solutions.

Spores or eggs of the germs cannot be killed by the above means, viz., by the use of antiseptics. Hence the best way of sterilising the dressings like cotton, gauze, towels, etc. is to boil them for several hours. Or, they can be sterilised by high pressure steam steriliser.

It is better that the dressings are handled by instruments like forceps. The instruments must be sterilised by boiling them for five minutes either in plain water or in soda solution. The sterilised dressings are normally kept in a sterile dish or plate which is done by burning it with methylated spirit.

The sterilisation of common solutions that are used for cleaning the wounds are as follows:

i. Water: Boil the water in a covered vessel for five minutes and cool it; now it is sterile and is ready for use.

ii. Sterile normal saline solution can be prepared by adding one teaspoonful of table salt (pure) to a pint of sterile water and boiling it for some hours and get it cooled for use, e.g., in burns, etc.

iii. Boric acid solution is a very feeble anti-septic, practically non-poisonous. 1 tablespoonful of boric acid is dissolved in a pint of sterile water. Boil for five minutes and cool it. This can be used for cleaning wounds.

CHAPTER VII

ENEMA

Enema means an injection of fluid into the bowel. When a fluid is injected into the rectum as a medicine or food it is called an enema.

The object of an enema is either to relieve constipation or to inject nourishment when assimilation by the natural channel fails. An enema is also used for the destruction of worms in the intestines, or for relief in the case of dysentery. Enema may be used for evacuation of the bowels, to check diarrhoea or dysentery and to nourish the patient. The idea is to introduce water into the rectum and so soften the faeces and make them easy to pass. The bulk of the water also stimulates the rectum mechanically and encourages its evacuation. Sometimes an irritant is added to enhance the effect. Soft soap may be added or, alternately, turpentine may be used.

When a jet of water is thrown out it is called a douche. A can with an outlet which may be connected to a rubber tube ending in a nozzle is a douche can.

A piece of rubber tube with a nozzle can be made to serve the purpose. A can can be dispensed with; any pot or *lota* may be used in place of can.

Washing out the colon by a douche is harmless and convenient. It is an efficient method to get rid of toxin in diseases.

There are varieties of enemata. They are:

1. Evacuant Enema which is given to empty and cleanse the lower bowel, e.g., glycerine enema, simple enema, soap or water enema, olive oil enema, olive oil and glycerine enema.

2. Carminative Enema. This is given to expel flatus or wind from the bowel, e.g., turpentine enema, asafoetida enema, alum enema, treacle enema.

3. Purgative Enema. A purgative is added to an enema, e.g. castor oil enema, magnesium sulphate enema.

4. Anthelmintic Enema. This enema is given in the treatment of thread worms, e.g., infusion of quassia, cold water and salt.

5. Astringent Enema. This enema is given to constrict the vessels in the lower bowel and so decrease the secretion of mucus. It is used in some forms of diarrhoea, e.g., tannic acid solution 2 per cent, nitrate of silver solution 2 per cent.

6. Sedative Enema. This is given to allay irritation and diminish the number of stools in some forms of diarrhoea, e.g., starch and opium enema, starch mucilage.

7. Stimulative Enema. This is given to allay shock, increase body heat and to supply fluid as in loss of body fluid, e.g. normal saline.

8. Nutrient Enema. E.g., Glucose.

9. Medicinal Enemata. E.g., Potassium bromide and chloride.

10. Anaesthetic Enema. E.g., Ether enema, avertin.

11. Opaque Enema. Barium in X'ray examination.

HOW TO GIVE AN ENEMA

I. Through a Syringe

The patient should lie in bed on his left side with the knees well drawn up. The nurse must see that the basin containing the enemata is ready on a chair or table by the bed side. The air should be squeezed out of the syringe so that the fluid to be injected is drawn into the syringe. Then the mouthpiece of the syringe having been lubricated with vaseline must be gently inserted and the bulb squeezed so that the fluid is forced slowly into the body.

Higginson's enema syringe is light, portable and suitable for travelling. For small quantities a glass syringe is to be used.

II. Enema Through a Douche

Plain water or soap water at the body temperature should be used.

The tube attached to the can should be connected with a rectal nozzle and all air in it should be expelled before introduction of the nozzle into the rectum. Raise the can about 2 or 3

feet above the level of the bed. Open the stop cock for letting out water. If you allow the water to enter slowly, it will remain within the bowels for a long time and break up the hard lumps of faeces. Remove the nozzle slowly. Plug the anus by pressing the two buttocks as long as is conveniently possible. If there are hard lumps of faecal matter, introduce your lubricated finger and remove them. Then the water will flow out easily.

In habitual constipation, dysentery and diarrhoea, the colon must be washed out. In such cases a No.10 catheter should be sterilised by boiling in water and lubricated by smearing with some oil or soft vaseline and then attached to the end of the rectal nozzle of a douche can. For children use thinner catheters.

DIFFERENT TYPES OF ENEMA

CASTOR OIL ENEMA

Mix 2 to 4 ounces of castor oil with 4 to 8 ounces of olive oil.

Mix one ounce of castor oil with a pint of thin starch.

COFFEE ENEMA

Six ounces of strong coffee to which a teaspoonful of salt has been added, may be given. This enema is useful in the treatment of coma occurring in opium poisoning.

ENEMA FOR THREADWORMS IN CHILDREN

Infusion of quassia: 1-100 solution of quassia and water.

Cold water and salt, 2 drachms to the pint is given with a Higginson's syringe or a catheter and funnel.

GLYCERINE ENEMA

This is usually given by means of a specially constructed enema syringe with a vulcanite nozzle and glass funnel. An ordinary 2 ounce glass syringe can quite well be used also. The usual amount for an adult is one ounce. The glycerine should be warmed before injection. For children a slight irritation near about the anus may be necessary to expel lumps of hard stools. For this purpose glycerine enema is highly beneficial.

MEDICINAL ENEMA

Certain medicines double the dose of which would be given by the mouth in ordinary cases, are given by rectal injection under special conditions.

In unconscious patients potassium bromide and chloride are administered during a fit.

In disorders of the stomach, when dyspepsia and vomiting are present, medicinal enema is given.

NITRATE OF SILVER SOLUTION (2 p.c.)

This enema is largely used in the treatment of dysentery when a large quantity of blood is present in the stools.

NORMAL SALINE

One drachm of salt is added to each pint of water and the enema is given at a temperature of 105 degrees F., either as one administration or 2 or 4 hourly administration.

NUTRIENT ENEMA

When feeding cannot be done through the mouth or is not advisable to do so, rectal feeding is necessary.

Wash the bowels by a purgative enema and then introduce slowly through a glass syringe the chosen liquid food or a solution of glucose.

Nutrient enemata containing pre-digested food such as milk, beef, tea, etc. are no longer universally given. It is now thought that glucose in solution is the only type of food that is absorbed by the mucous membrane of the large bowel.

Add one or two ounces of glucose to a pint of warm water to make 5% or 10% solution.

OLIVE OIL ENEMA

Either pure warmed olive oil, 4 to 8 ounces, may be used or it may be mixed with an equal quantity of soap and water. When the olive oil is given alone it should be retained and followed by the injection with a soap and water enema two hours later.

SIMPLE ENEMA (ENEMA SIMPLEX)

Warm water 100 degrees F. For an adult 1 to 2 pints may be used.

OLIVE OIL AND GLYCERINE ENEMA

Olive oil and glycerine are mixed together in equal parts, 4 ounces each. The mixture is warmed and slowly injected. Give a soap and water enema two hours later.

SOAP ENEMA

Dissolve an ounce of good quality soap flakes or pure yellow soap in a pint of warm water.

SOAP AND WATER ENEMA

One teaspoonful of soft soap to 2 pints of water at a temperature of 100 degrees F. Dissolve the soap in the water. Strain the mixture through a fine strainer or through gauze. Remove all soap bubbles from the top of the mixture to avoid the danger of introducing air in the form of bubbles. You can add one ounce of olive oil to the mixture to make it more lubricating and less irritating.

STARCH AND OPIUM ENEMA

This is useful to check excessive diarrhoea. For an adult 2 ounces of starch mucilage is mixed with 20 to 30 minims or drops of tincture of opium. It should be given nearly cold and very slowly.

A glass syringe is to be used for this purpose. Attach a catheter to the nozzle of the syringe. Introduce the fluid gradually and slowly. This is important.

This enema allays the irritation of the rectum and allows the patient to retain the motion longer. It is a useful enema at bed time in order to give a patient with diarrhoea a restful night.

STARCH MUCILAGE

4 to 6 ounces may be given in order to form a soothing coat on an inflamed or irritated bowel and to relieve diarrhoea and tenesmus in dysentery.

TURPENTINE ENEMA

One ounce of turpentine is mixed with 2 ounces of olive oil and added to one pint of soap and water solution. Or one ounce of turpentine mixed with 4 ounces of olive oil or with 4 ounces of starch mucilage may be given. It is important to mix the turpentine well with the oil or mucilage, shaking it up until it is an

emulsion; otherwise the turpentine will burn the mucous membrane of the bowel.

CHAPTER VIII

INJECTIONS

Injection is the introduction of fluids into the system.

Injections are very useful. They may save life when nothing else remains to be done for a patient. A speedy effect is attained by an injection.

Injections are immensely beneficial in the case of patients who are unconscious and who are in a state of collapse and who cannot swallow medicine. They are useful also in patients in whom administration of medicine by the mouth is not possible owing to gastric disorder or in patients who refuse to take medicine by the mouth. Every nurse, every compounder, every man should try to learn the art of giving an injection.

Where it is impossible to obtain medical aid hypodermic injections may be given.

Sometimes morphia for the relief of severe pain, or emetin for amoebic dysentery, or insulin for diabetic patients is urgently required.

There are different routes of administering drugs by injections. These are:

1. Hypodermic
2. Intramuscular
3. Intravenous

HYPODERMIC INJECTION

By this is meant administration of drugs directly into the body, through the skin with the help of a hollow needle fitted on the head of syringe made of all-glass or glass and metal. There are many varieties of syringes of different measures or capacity used for this purpose.

The gradations of the syringe indicate cubic centimetres (c.c) by numerical figures and the divisions are 1 or $\frac{1}{10}$ c.c. each in 2 c.c. and 2 or $\frac{1}{5}$ c.c. in a 10 c.c. syringe.

An all-glass syringe is the best of its kind.

The syringe must be carefully sterilised by boiling it in water together with a pair of forceps for at least 5 minutes. Then the forceps may be taken out of the water and by its means the syringe put together. The needle is affixed by the forceps and the syringe is ready.

The substance to be injected, if a liquid, is then sucked up into the syringe. If it is solid in the form of a small tablet, it must be first dissolved in some water that has been boiled in a small spoon. Put the tablet in the water when it is still almost boiling and when it has dissolved the liquid can be sucked up into the syringe.

Turn the syringe up and move the piston till the bubbles of air in the barrel have been expelled.

If there is any doubt as to the sterility of the needle, slowly pass it through the flame of a spirit lamp.

Give a hypodermic injection in the arm. Paint the spot with tincture of iodine or spirit just before the operation.

Pick up a fold of skin; skin only between thumb and finger of the left hand. Hold the syringe in your right hand. Push the needle now boldly in. Push the piston. Inject the liquid. Then withdraw the needle. Let your left thumb and forefinger still steady the patient's arm during the withdrawal.

See that the needle is sharp and the bore clear.

If you use an ampoule, cut or break off the end of the ampoule, holding it slightly inclined down so that specks of broken glass may not get into the ampoule. Introduce the needle of the syringe into the ampoule. Hold the mouth of the ampoule slightly pointing downwards. Slowly suck in the contents by pulling the piston. Gradually invert the ampoule without allowing a drop to fall off. The filled syringe is now ready for an injection. No air should be drawn in. Push the piston till a drop of fluid trickles by holding the needle upwards.

Withdraw the needle and stop bleeding by pressure of a piece of sterile cotton with a little tinct. of iodine in it.

INTRAMUSCULAR INJECTION

This is best made into the buttock or the upper part of the arm just below the shoulder. Here there are massive muscles with-

out any important nerves and blood vessels. Insert the needle a little slantingly upto at least an inch depth in a muscular area. Do not insert the needle too deep to reach the bone and not too little to inject the drug into the fat.

Quinine is injected intramuscularly. Do not touch the piston when the needle is penetrating. No drop of quinine should ooze out of the needle when it is being introduced. No drop should get under the skin when the needle is being pushed. The needle's end must be quite dry. If a drop of quinine gets under the skin when the needle is being pushed it may cause suppuration and deep abscess.

Introduce the needle to its full length with a stabbing movement.

If any blood enters the syringe withdraw the needle and make another attempt in quarter of inch in front.

Withdraw the needle with a quick movement. Push up the superficial tissues with the left hand. The object of this is to avoid leakage of the injection into the subcutaneous tissues with the possible formation of an abscess.

INTRAVENOUS INJECTION

One of the veins at the bend of the elbow is the best site.

The patient's arm is placed in a position of supination and extension. The veins are made prominent by a bandage or tourniquet above the elbow and a movement of opening and closing the fist. Disinfect the skin with iodine. Let the index finger of your left hand steady the vein which is very mobile.

Now slantingly insert the needle into the vein parallel to it. As soon as the needle is inside the vein, some venous blood will gush in immediately into the syringe through the needle. Remove the tie now. Push the solution into the vein very gently. When the whole contents have been injected, press with the left index finger the point of injection and sharply draw the needle out. After taking the syringe out maintain the pressure at the point of insertion for a minute or two and then leave it.

If blood still oozes out, keep a cotton moistened with tincture of iodine pressed for some time longer. Take care that the opposite wall of the vein is not perforated.

If during the injection a swelling appears around the vein stop the injection immediately.

SALINE INJECTION

Saline injection is needed in urgent cases to repair or replace the loss of fluid from the body by bleeding as a result of injury or bleeding after child birth or bleeding in diseases and by purging in cholera, bacillary, dysentery, etc.

There are generally three methods of administration of saline, namely, subcutaneous, rectal and intravenous.

An isotonic saline solution for injection into the blood, so that it may possess the same osmotic pressure as the blood serum, is one of 9 per cent strength or containing 80 grains of chloride of sodium to one pint of water. This is also known as normal or physiological salt solution.

SUBCUTANEOUS INJECTION

One or two pints are run into the loose connective tissue under the breasts in women, into the thighs, axillae or groins in men, or into the flank in children. If given continuously, about half a pint should be given per hour.

Saline must never be given subcutaneously in cholera, as, in spite of all aseptic precautions, the area injected is very liable to slough on account of patient's greatly lowered vitality.

RECTAL INJECTION

It may be given in one large amount, one or two pints after an operation, as it relieves thirst, promotes elimination and lessens shock, or it may be given continuously by the drop method at the rate of one pint per hour. Saline is also used for irrigation of the colon in dysentery.

INTRAVENOUS INJECTION

In the stage of collapse and anuria in black water fever early saline will often save the patient's life.

The appliances required are: a needle for intervenous injection, a graduated saline bulb of one pint capacity with rubber tube 5 feet long, some cotton, iodine, three quart bottles of saline equal strength and quality of filled already.

Let the patient remain flat on his back in the bed before the administration. Bind a rubber tie or a bandage round the upper arm to find out the vein. Sterilise the skin with iodine. Fill the saline tube and have it held up close by at some height. Introduce the needle into the vein with the cock in communication with the open tube. Blood flows out through the open end as soon as the needle gets inside the vein. If blood will not flow, the needle has not entered the vein. Try till blood comes out.

Remove the rubber band, turn the cock communicating the needle with the bulb. Saline solution will now flow in. Go on giving saline till the desired quantity has been infused.

CHAPTER IX

POISONS AND ANTIDOTES

Poisons	Antidotes
Acetic Acid	Magnesium oxide; soap water; mucilage; oil; milk.
Aconite	Tannic acid solution for washing out stomach; digitalis; stimulants; absolute rest in recumbent position.
Alcohol	Stomach evacuation; coffee; stimulants.
Alkali	Dilution; vegetable acids (lemon juice or diluted vinegar); demulcents.
Arsenic	Hydrated iron; emetics; castor oil; demulcents.
Bromides	Caffeine; salt.
Cannabis Indica	Evacuate stomach.
Caustic Soda	Vinegar; sour wine; lemon; apple juice.
Chloral Hydrate	Evacuate stomach; application of heat to extremities; massage; coffee by rectum; strychnine; amyl nitrite; artificial respiration.
Cocaine	Stimulants; amyl nitrite; artificial respiration.
Copper Sulphate	Albumin; magnesium oxide; milk; powdered iron; charcoal.
Corrosive Sublimate	Camphor; tannin; mucilaginous substances.

Croton oil	Evacuation of stomach; demulcent drinks; morphine; poultices to abdomen.
Cyanide	Clean out stomach with 1 to 2000 potassium permanganate, methylene blue by way of the veins.
Hemlock	Stomach evacuation; tannic acid; stimulants; warmth atropine; artificial respiration.
Hydrochloric acid	Demulcent drinks; oil; stimulants.
Hydrocyanic Acid	Make attempts at cleaning out stomach; artificial respiration.
Iodine	Stomach emptied; Epson or Glauber's salts; milk; sedatives
Mercury Bichloride	Albumin; flour; stomach evacuation; calcium sulphide; sodium hyposulphite.
Nitric acid	Alkalis; soap; demulcents; stimulants.
Opium	Empty stomach; arouse patient to maintain respiration by exercise; cold and hot baths alternately; coffee or atropine; external heat; artificial respiration.
Oxalic Acid	Lime or chalk.
Phenol	Empty stomach with dilute alcohol.
Phosphorus	Copper sulphate as an emetic; then liquid Paraffin as antidote in small doses.
Picric Acid	Diuretics.
Santonin	Empty stomach; treat convulsions.

Silver salts	Salt and water; empty stomach; large amounts of milk.
Strychnine	Empty stomach; tannic acid; artificial respiration; control convulsions.
Salfonamides	Fluids.
Sulphuric Acid	Chalk; magnesia; soap; demulcent drinks.
Tobacco	Empty stomach; opium; stimulants; Coffee; recumbent position; warmth.

IRRITANT POISONS

Irritant Poisons	Antidotes
Acid sulphuric, nitric acid.	Do not use emetics and the stomach pump.
Hydrochloric acid	Give magnesia $\frac{1}{2}$ to 1 ounce in water. Chalk or white wash scrapped off walls; washing soda or the bicarbonate in milk or water.
Mercury salts as corrosive sublimate, vermillion, etc.	White of egg in water, wheat flour thick in water. Avoid emetics.
Arsenic and its salts	Immediate administration of an emetic; use stomach pump. This must be followed by a mixture of oil and lime water, soap suds, milk, flour and water. Give stimulants to treat the shock.
Copper salts	White of egg in water, milk, wheat flour in water.
Carbolic acid	No emetic. Give 10 ounces of medicinal paraffin, or epsom or glauber salts one tablespoonful in a tumblerful of milk. Failing

Iodine

this, olive oil, milk and white of egg can be freely given.

Give starch and water freely or thin cornflower or arrowroot.

NARCOTIC AND DELIRIANT POISONS

Poisons

Dhatura, hemlock,
Indian hemp, opium,
morphine, chloride

Antidotes

Strong coffee or tea, motion and means to prevent sleep, artificial respiration, powdered charcoal.

OTHER POISONS

Poisons

Prussic acid

Cyanides

Strychnine,
Nux vomica

Antidotes

Act very rapidly. Cold douche, artificial respiration.

Smelling salts, open air, emetic, spirit ammonia aromaticus. If death is not imminent, wash the stomach. Give cardiac and respiratory stimulant.

Wash out the stomach with stomach tube if condition of the patient permits. Give a hypodermic injection of morphia. Keep the patient under chloroform to relieve pain, convulsions and exhaustion. Give an emetic apomorphine hydrochloride hypodermic $\frac{1}{10}$ grain. Wash out the stomach with tannic acid solution or potassium permanganate solution. Potassium bromide 1 drachm may be repeated every 15 minutes. Artificial respiration, oxygen inhalation and warmth are useful.

CHAPTER X

HOME HYDROTHERAPY

Among the drugless method used in the treatment of disease, the use of water is the most important.

One of the most valuable methods in the hands of a Home Nurse is the application of heat and cold in order to give relief to the suffering and also in helping the system to come back to the normal condition. Water is a very useful substance in treating a feverish patient, used either internally or externally. Outside the body it is used for cleaning the skin and to soothe the patient.

The main action of water on the skin is as a vehicle for heat. Baths act largely either by extracting heat from or adding it to the body. The sweat glands of the skin excrete 30 ounces of water daily, containing about one twentieth part of the nitrogenous waste of the body and its excretory activity may be greatly increased by baths of high temperature. Baths also exert a pronounced effect upon the nervous system owing to the sensitiveness of the skin to heat, and to electrical, chemical and mechanical influences.

Cold sponging, wet pack, or immersion in water are useful in reducing temperature of the body in fevers. When you take a quick-dip or plunge in cold water, you experience a delightful feeling of invigoration with quickened circulation of blood. There is great energy for muscular and brain work. There is a glow of warmth in the skin. Ice bag on the head is highly beneficial in high fevers, in delirious conditions, in the troublesome head symptoms of typhoid or meningitis, and in diseases in which the central nervous system is affected.

Judiciously used, warm baths are remedies of great utility. The effect of a hot bath is to relax the muscles, and to dilate the peripheral blood vessels.

The temperature for baths is—cold bath 60 to 70 degrees Fahrenheit, tepid bath 70 to 85 degrees, warm bath 85 to 95 degrees, hot bath 100 to 106 degrees F. or higher.

Hot baths are useful in inflammation, rheumatism, neuralgic pains, in debility, etc. Hot water bottles or hot water bag to the feet are beneficial in shock, collapse and rheumatism. Congestion is relieved by hot applications over a large skin area because they draw the blood to the surface.

The hot water must be added to the cold water, never the cold to the hot.

Hot poultices are beneficial in diseases of the respiratory organs. They relieve pain and congestion and reduce inflammation.

Cold baths are tonics for those in robust health but are not suitable for people with weak circulation of blood.

Equipments for Home Hydrotherapy

1. Four fomentation clothes, wool, or half wool.
2. Two hot water bags.
3. One ice bag.
4. One bath thermometer.
5. Two elliptical foot tubs.
6. Two kettles.
7. Four towels.
8. Two buckets.
9. One big zinc tub.
10. Two blankets.

COLD IMMERSION

This is a more drastic method than wet pack. It is used when wet pack cannot be relied upon to reduce the temperature and a quicker lowering of temperature is needed than can be accomplished by wet pack. It is dangerous to allow the high temperature to run on for a long time. The temperature must be brought down at once.

Place the patient in the tub, half filled with water. Add on cold water. Let the body be completely immersed in cold water. If a suitable bath tub is not available let the patient sit on a stool or a cot. Cover his body with a wet sheet. Now go on pouring

water over the cover. The temperature will be brought down quickly. Then dry up his body with a dry towel and place him in the bed. Cover his body with a sheet or a blanket.

If you want to save the life of the patient you will have to take recourse to cold immersion.

COLD WATER CURRENT ON THE HEAD

This is useful in removing the congestion of blood in the head. Shave the head if it is possible. Let the patient lie down on a cot. Pour water in a stream on the head for some time. Then dry the head with a dry towel.

When the head is being cooled, the feet may be warmed in order to draw the blood to them. Put hot water bottles about the feet. You can dip the feet in hot water. Let the patient lie down across a cot with the legs hanging down to reach the hot water tub below.

Always test the temperature of the water by placing your hand in the water. Let not the water be too hot and scald the patient.

ALTERNATE HOT AND COLD IMMERSION

This has great healing properties in inflammation of hand and foot and ulcers in these parts.

Take two buckets, one of very hot water and another of cold water. Place the limb or the affected part first in hot water for a minute. Then place it for five seconds in cold water. This is to be alternated for half an hour.

This treatment can be repeated thrice daily for half an hour.

Boil some neem leaves in the hot water. This is more efficacious. This is useful in sprains and bruises.

COLD SPONGING

Cold sponging cleans the skin and stimulates its action. It cools the body and brings down the temperature. It works like massage to the skin. Water at a temperature of 65 degrees Fahrenheit is used.

Take a wet towel without wringing out much water from it. Pass it over the surface of a limb. Then rub the limb with another towel, soaked in water and wrung out.

Take one limb. Quickly finish the part and then take another limb. In this way sponge the whole body, front and back. Then repeat the process till the temperature is lowered.

After sponging, cover up the body with dry cloth, or a thin blanket. Change the bed-sheet. Change the clothes of the patient also. He will feel quite refreshed now.

For lowering the temperature vigorous and prolonged sponging with an abundant supply of water is required.

COLD COMPRESS

A cold compress is a local application of cold by means of a cloth wrung from cold water. Towels or ordinary cotton clothes may be used. Several folds of old cloth are dipped in cold water at 50 to 60 degrees F., and wrung out. They can be dipped in ice water also. The wringing should be barely sufficient to prevent dripping.

The compress must be frequently renewed always before it is warmed to any great extent. The thicker the compress, the less frequency will it require for renewal. Towels or cotton cloth should be folded to the desired size.

The linen or towel that is partly wrung out of cold water is laid evenly over the affected part and covered with flannel binder, several layers thick, to prevent radiation. The compress is renewed every hour. Put on bandage. Instead of flannel you can cover it with a plantain leaf.

This is very useful at the onset of pneumonia, and can be used to relieve the pain of appendicitis and peritonitis due to perforation while preparations are being made for operation.

Cold compress may be applied to the head, the neck, over the heart, or the lungs, to the abdomen, the spine and other parts. When compresses are applied to the abdomen in typhoid fever, the bedding and the patient's clothes should be protected by Turkish towel.

In place of water any lotion such as alum or boric lotion may be used.

A saturated solution of magnesium sulphate used as cold compress for erysipelas or cellulitis or sprain is very effective.

ICEBAG

Ice is used as a convenient form of applying cold both externally and internally.

A rubber bag filled with ice is frequently used as a local application of cold.

See that the ice bag is free from punctures or cracks.

Wash the pieces of ice. Remove the adherent saw dust from the pieces of ice. Wrap them loosely in an old towel. Matter them with a mallet. This will powder the ice in small lumps suitable for the bag.

Fill the bag with the ice. Use a spoon. The bag is to be only three-fourth full. Before the stopper is screwed in the air should be squeezed out in the same manner as when filling a hot water bag. Otherwise the ice bag is apt to roll off the spot to which it is applied.

The rubber sides are to be pressed flat on ice and the cap put on. Thus all extra air inside is expelled. Pressure of air interferes with the smooth contact of the bottom of the bag.

The bag is laid upon the head, abdomen or other parts. A layer of flannel or a garment should be placed between the bag and the skin to prevent a direct freezing action on the surface.

The screw cap must be securely fastened. There should not be any leakage of water from the bag. The ice bag must be inspected whether it is watertight. The ice must be renewed as often as necessary to keep the application cold. If this is not done, the water in the ice bag gets warm. The skin should be inspected whether it is normal in colour and not chilled.

The addition of salt intensifies the cold. It lowers the temperature below that of ice. The ice cap should have a piece of lint or cloth tied round it before application as the constant drip of moisture is unpleasant to the patient. When a rubber cap is not procurable, use a flannel bag, a bladder or even a folded handkerchief to hold the ice chips.

The head is to be shaved or cropped close for getting the full benefit of the ice bag when applied on the head. Hair is a non-conductor and prevents the cold from penetrating fully. If the head is shaved, put a piece of cloth or lint between the rubber and the skin to prevent direct contact.

Where ice is to be applied continuously an interval of a few minutes should be given every hour in order to get the best effect.

After use drain the water thoroughly and dry the bag. Some sort of powder (arrow root) should be dusted in the interior in order that the two surfaces may not adhere to each other and break when the bag is next needed for use.

When an ice bag is not available, ice may be applied by taking a large piece of gutta-percha tissue, laying the ice upon its centre and bunching up the corners, which are tied together with a string.

MOIST CHEST PACK

The inside part consists of four thicknesses of thin clean cloth. The outer part should be of thick flannel. The inside part should be of an oblong form. It must be wide enough to reach from the top of the shoulder to the lower ribs. It should be long enough to go round the body and give a double thickness in front. The ends should be split up into two strips. The outer flannel should be four inches wider than the inside part. The inside part should be dripped in cold water and wrung out. It should be applied to the chest.

One strip is brought over the shoulder and across the chest. The other strip should fit under the arm and be brought across the chest. Apply the flannel over this. Let the flannel cover up the wet part. Pin it comfortably in place with safety pins. The wet cloth may be covered with oiled silk. This will help retention of the moisture.

In the dry chest pack, only the flannel is used.

Chest packs are useful in pleurisy, pneumonia, colds, influenza, asthma, whooping cough, etc.

TEPID SPONGING

If the patient is not able to have a cold sponging on account of weakness give him a tepid sponging.

Tepid sponging is soothing. It reduces the temperature. Water at a temperature of 80 to 90 degrees F. is used.

Dip a towel in tepid water and rub the whole body. If the towel becomes dry, dip it again in the basin of tepid water. You can use a sponge also.

Take one limb. Quickly finish the part and then take another part. In this manner sponge the whole body, front and back.

Cover the patient with a dry cloth after sponging is over. Change the bed sheet and his clothing also. He will be quite refreshed now.

HOT COMPRESS

It is similar to cold compress. Several thicknesses of flannel or lint or cloth should be boiled for five minutes; wrung out as dry as possible and then apply beneath oil silk and wool.

This operation is repeated by using two pads alternatively; while one is applied, the other is kept dipped in the boiling water.

When the affected parts have become quite hot, then the pad is covered with a plantain leaf and bandage. The plantain leaf prevents the evaporation of water.

Fresh compress may be given every 2 or 3 hours.

Small pieces of pad should be taken up from boiling water by tongs, put over a spread piece of cloth and wrung out.

Hot compresses hasten suppuration, relieve the pain of arthritis, sprains, lumbago and neuralgia. They are also useful in the treatment of bruises, cramps, hepatic and renal cold.

ICE COMPRESS

This is best applied in the form of an ice bag.

An efficient form of cold is the ice pack or the ice compress.

Finely chipped ice is wrapped in several layers of cloth or gauze and applied to the affected area.

The ice compress does not need to be changed until it becomes dripping wet.

Then it should be unfolded. The ice should be removed from the gauze. The gauze should be wrung as dry as possible, ice folded in it again and the compress re-applied.

HOT THROAT COMPRESS

Fold a clean cotton cloth four or six times, three inches wide and long enough to encircle the neck twice. Dip this in hot water. Wring it out. Put this round the neck. Over this, wrap a folded flannel four inches wide.

This compress is useful in sore throat, hoarseness, tonsillitis, pharyngitis, acute laryngitis, quinsy, etc.

HOT WATER BOTTLE

This is used to warm up the patients and is a very necessary article of common use in the sick room. The application of hot water bottle needs much care as burns frequently result, especially in unconsciousness or paralytic patients, if they are applied without a sufficient amount of covering between them and the patient.

Patients suffering from cold, collapse, shock, anaemia, starvation, consumptive patients and underdeveloped children often require to be warmed up artificially.

Hot water bottles should be put in a flannel bag and placed so that a piece of the top blanket is between them and the patient. The most convenient form of hot water bottle is made of rubber, but they may be of tin or earthenware.

Hot water bottles may be put round the body or at special places like feet, etc. to supply warmth.

In filling a rubber bottle exclude the air. This is done by not filling it completely and then placing the hand over the empty portion and squeezing out the air before the screw is put on.

Several quart or pint bottles are to be selected and proper corks fitted on to them. Fill the bottles with water. Leave some air space at the top. Never fill the bottles to the brim. The plug is to be fastened down to the neck by a cap of a rag which is to be wrapped round with a string. All these precautions are necessary. Otherwise the cork may be forced off resulting in injury to the patient.

Hot water bottles should never be applied directly to the skin. They should have a thin wrapping of cloth. Rubber hot water bags are more convenient than bottles.

Use a funnel when you fill the rubber bag with water. This will prolong the life of the bag.

Hot bricks wrapped round in flannel may be used as a substitute when nothing else is procurable.

CHAPTER XI

FOMENTATION

A fomentation is a local application of moist heat by means of clothes wrung from hot water or heated in a steam chest.

Fomentation is a word that means literally "*Foveo*", "I keep warm". Fomentation eases pain by heat.

Usually the fomentation cloth is heated by being wrung out of hot water, but the term is also applied to dry applications and to hot clothes upon which various drugs are sprinkled.

A fomentation dilates the blood-vessels of the parts to which it is applied. It has a soothing effect upon the endings of nerves. It aids the absorption of effusions and relieves pain. In the case of superficial abscesses it softens the skin and helps the abscess to point.

The application of moist heat to inflamed, painful or irritated parts, or painful joints is highly beneficial. Coarse flannel or a strip of old blanket is useful for this purpose.

Open a towel and lay it in a basin. On the centre of the towel lay the piece of flannel or strip of old blanket and pour boiling water into the basin. Then take up the two ends of the towel and fold them together. Now twist the two ends of the towel in the opposite direction. After being wrung out, the steaming piece is applied to the part. The strip is touched and taken up till the patient can bear it. When the heat is bearable the piece is left there. When it cools down, another piece is put into the water. It is wrung out and applied. The cold one is returned to the hot water. The temperature of the water will fall by these dippings. Add more boiling water and keep up the temperature. The fomented part should be kept wrapped dry after fomentation.

In another form of fomentation the hot piece of flannel is placed over the affected part and covered with a dry flannel bandage in order to retain the heat.

DRY FOMENTATION

Bran, sand or salt is used for giving a dry fomentation. They should be well heated in a saucepan or iron pan over the fire before being put into a flannel bag and then applied to the part. Another bag should be kept in readiness, when the first becomes cold.

These dry applications are very useful for relieving the pain of colic, neuralgia, lumbago, rheumatic joints.

Protective is not needed for these kinds of fomentation. A thick piece of flannel over the bag will keep the fomentation warm longer.

TURPENTINE FOMENTATION

This is also known as a "stupe". It is prepared in the same way as the hot fomentation, but in addition, after the boiling water is poured on the piece of flannel and before it is wrung out, one or two teaspoonfuls of turpentine are sprinkled on the cloth.

Turpentine is applied on the skin also. Other counter-irritants may be used in place of turpentine. Five to fifteen minutes may be enough. Watch carefully for the reddening of the skin.

Turpentine stupes may be applied every four hours. Care should be taken that the part does not become unduly reddened and that no blisters form. If the skin is very tender smear it with a little oil or vaseline before the next stupe is applied. A piece of dry cotton is placed over the part after the removal of the stupe.

LAUDANUM FOMENTATION

Laudanum is tincture of opium.

This is prepared in the same way as the hot fomentation. The following is the addition. Sprinkle 2 or 3 teaspoonfuls of laudanum on the cloth after it is wrung out and just before the fomentation is applied.

There is another method of preparing the fomentation. Take six dry poppy heads. Break them up and boil them with two pints of water in a vessel for half an hour. Strain the solution. Then pour the water from a vessel on to the fomentation cloth that is lying on the towel in the basin. This is also a soothing fomentation.

BORIC FOMENTATION

This allays inflammation in the case of open wounds, abscesses and ulcers. A double piece of lint is used instead of the flannel cloth.

Dip this in a warm saturated solution of boric acid. Wring it out. Apply it to the affected part. Cover this with a plantain leaf or any leaf or oil paper or oil cloth or a jaionette, a gutta percha or oiled silk. Over this put cotton wool and then put on a bandage.

Boric lint may be used instead of plain lint. Pour boiling water over it, wring it out and apply in the same manner as the ordinary fomentation. Cover this with a plantain leaf or any leaf or oil paper; over this put cotton wool and then put on a bandage.

FOMENTATION OR STUPES

This is a convenient and readily available method of application of moist heat for relieving pain on any part of the body. This fomentation should be changed every ten or twenty minutes. Frequently they are left on the affected parts for an hour or two and covered with wool and bandaged closely to the skin. Otherwise, they become cold and uncomfortable. This fomentation should be carried out by the bed-side of the patient.

TURPENTINE STUPE

Turpentine stupe is one such fomentation. A towel is spread in a basin. A piece of soft old flannel or lint is put on the towel and spread out. Two tea-spoonfuls of turpentine are sprinkled over it and boiling water is poured over it. Twist the ends of the towel in opposite direction. The stupe is wrung out quite dry. If any superfluous moisture is left in it, it is likely to scald him. The flannel is then unfolded and the surface on which the turpentine was sprinkled is applied to the affected part of the patient. By this method a more even distribution of turpentine is possible. It is a better method than by sprinkling the drug on the fomentation after the latter has been wrung out.

In the case of acute pain the fomentation or the stupe should be changed every ten minutes. A stupe should be applied only until the surface skin becomes reddened. It should

be removed at once. If the skin is too red, dust it with zinc and starch powder. Usually the stupe is not to be repeated. This should be kept on the affected part for an hour or two after covering it with wool and bandaging it close to the surface of the skin. The wool is used to keep the heat of the fomentation.

This is very useful in cases of acute abdominal pain, appendicitis, lumbago, etc. The stupe or the fomentation should not be used in kidney diseases.

CHAPTER XII

MEDICATED HOT BATHS

ALKALINE BATH

This bath is commonly used in cases of chronic rheumatism and is prepared by adding one pound of sodium bicarbonate or washing soda to a large tub of water (30 gallons).

BRINE BATH

This is a stimulating bath. This increases the circulation of blood in the skin and has a tonic effect.

This is made by mixing 4 or 8 pounds of common salt with 30 gallons of hot water.

MUSTARD BATH

This is largely used for its irritant effect. It draws blood from deeper parts, as for example, when used at the onset of a febrile cold, and in the treatment of infantile convulsions. Its stimulating and tonic effect is seen when it is used in the treatment of shock and in cases of infantile diarrhoea.

A tablespoonful of mustard to every gallon of hot water is generally ordered for an adult and half this strength for a child. Mix the mustard with a cup of cold water, then add to a gallon of hot water and so on in the same proportion. The heat of the bath should range from 95 to 100 degrees F.

The mustard may be tied in a muslin bag, from which it can be squeezed when put in the water. This bath is ordered for children. The child is kept in it, if necessary in the nurse's arms, till the skin is slightly reddened when it is removed and put between warm blankets. The child's whole body, except the head, should be immersed in the bath.

This is a good stimulant, especially for children who are in a state of collapse, or to ward off a cold from an older person.

A mustard bath as a foot bath is very soothing for a bad cold.

EMOLLIENT BATHS

An emollient bath has a soothing effect on the skin. It is useful in diseases of the skin, characterised by irritation and inflammation. It is also beneficial whenever the skin is chapped or liable to be chappy as after erysipelas. The following substances are used in the emollient baths.

Glycerine 12 ounces to 30 gallons of water.

Oatmeal 2 pounds to 30 gallons.

Starch 1 pound. Mix the starch with cold water. Pour boiling water on to make a starch mucilage. Add this to 30 gallons of water.

Powdered borax. 1 pound to 30 gallons of water. Add 8 ounces of glycerine. This makes it more soothing.

Bran 3 pounds to 30 gallons of water.

Linseed. 2 pounds to 30 gallons.

Tie this in a strong muslin bag. Boil it and add the mucilage to the 30 gallons of water.

ANTISEPTIC BATHS

These are useful in the treatment of certain offensive, irritating and parasitic skin diseases.

Iodine Bath: 1 ounce of tincture of iodine to 30 gallons of water.

SULPHUR BATH

3 ounces of sulphur to 30 gallons of water.

Boric acid Bath: 2 lbs of boric acid to 30 gallons of water.

ASTRINGENT BATHS

Alum $\frac{1}{2}$ pound to 30 gallons of water.

Tannic Acid $\frac{1}{2}$ pound to 30 gallons of water.

HOT FOOT BATH

The hot foot bath is one of the most useful of all water treatments. This is a very useful method of heating the feet.

Undress the patient. Cover him with one or two blankets. Fill a basin with hot water. Let the patient sit on a stool and dip his feet in the water. The water level should be up to the calf.

See that the blanket covers the water vessel, so that the steam may have access to the whole body. After fifteen minutes rub, dry and put the patient to bed.

Water may be poured also over the knee in this position so that from the knee downwards the entire leg may be kept hot.

The foot bath may be given with the patient lying or sitting. A tub of an elliptical shape, about 16 inches long and ten inches deep may be used.

The bath should begin at a temperature of about 104 degrees Fahrenheit and should be gradually increased to a maximum of about 120 degrees.

In adding hot water to the foot tub, push the feet of the patient to one side so that they will not be burnt as the hot water is poured slowly into the side of the tub.

The hot foot bath draws blood from all other parts, especially those which are congested.

It is sometimes desirable to use a mustard foot bath, in which case add two teaspoonfuls of mustard-flour to the water.

Mustard foot bath is a good stimulant for children who are in a state of collapse or to ward off a cold from an older person. The heat of the bath should be 100 degrees Fahrenheit.

CHAPTER XIII

POULTICE

A poultice is a preparation of some paste, usually hot and moist. It is one of the most efficient methods for applying moist heat.

Poultices are soft, moist applications to the surface of the body. They are generally used hot. They soften the parts with which they come in contact. They soothe the irritated nerve-endings. They relax spasmodically contracted muscle fibres. They dilate the blood vessels of the part they cover and increase the circulation of blood through it.

Poultices are used in all stages of inflammation to soothe pain and to promote resolution or in the late stages, when pus is forming to aid the ripened formation of an abscess.

The commonest poultices are anti-phlogistine, linseed and starch. Any paste applied to the skin can be called a poultice. An ice poultice is sometimes used but it is a slightly different preparation.

Poultices should never be used for suppurating conditions or open wounds, because their warmth and moisture favour the growth of bacteria or germs.

The virtue of a poultice lies in its heat, and the hotter it is within reason, the better.

See that the poultice is larger than the surface affected.

All poultices should be applied as hot as they can be borne. At the same time they must not burn or scald the patient.

Spread the poultice on a strong piece of linen or clean handkerchief or a sheet of brown paper. The poultice must be nearly an inch thick. If it is thinner it will get cold quickly. See that the edges are as thick, if not thicker, as the middle; otherwise they will get cold and harden before the poultice is removed and cause discomfort.

If the poultice is not made in the sick room itself, put it on a warmed plate and cover it with another that has also been warmed, in order to keep in the heat when you carry it to the patient.

LINSEED POULTICE

Poultice is best made out of linseed meal. Fry linseed over fire in a pan. Then pound it into a rough powder. Mix this powder with six times its weight of water and put it in a pan to boil. The mass thickens. The oil in the seed prevents the mass from sticking to the sides of the vessel.

When the mass is cooked soft and becomes of the consistence of broth, take it down. Spread the poultice half an inch thick on a clean piece of cloth or lint a little larger than the part of the body to be covered. Be certain that it is not too hot. The skin should not be burnt. Poultice is to be applied as hot as can be borne.

Fix the poultice by a bandage. It should be kept as long as it is hot and then taken off and replaced by a new one. Take off a poultice only when the next one is ready.

Rice flour, or wheat flour can also be used for making poultice in the same way.

Add little mustard oil or sessamum and a little turmeric powder to the poultice when it is cooked. The surface of the cloth will not stick to the skin on account of its being mixed with oil.

If you add some rubefacient oil to the poultice such as turpentine, menthol or thymol dissolved in oils, the poultice becomes a counter irritant. It then works more powerfully and efficiently in cases like pneumonia than mere poultice. It aids the resolution of the stagnant matter within the lungs.

On removal of the poultice, apply a piece of warm flannel or a pad of cotton wool to the part in order to prevent the danger of catching cold.

Poultices should be made as quickly as possible, as they should be applied as hot as can be borne. If a poultice becomes cold or lukewarm in the process of making, it should be rolled up with meal-side inside and put in the oven between two hot plates till it becomes warm again.

Bran Poultice: This is made in the same way as the linseed poultice.

BREAD POULTICE

This is made by breaking up stale bread in a basin, pouring boiling water over the crumbs sufficient to soak them, draining off superfluous moisture, and by spreading on a cloth, lint or linen and covering with muslin.

The surplus water is strained off through a piece of muslin. The poultice is applied in the usual manner. Bread poultices must be renewed at short intervals as they soon become cold.

Bread poultice and starch poultice are used at the body temperature in order to remove the crusts of skin eruptions, scabs on the head, or soften a hardened surface.

STARCH POULTICE

Mix a tablespoonful of starch in cold water and add boiling water till it becomes a smooth paste. Spread it on a linen, lint or clean cloth and apply.

ANTI-PHILOGISTINE

This is a preparation of a number of medicinal ingredients. It has largely superceded the other poultices. It is easier to prepare and does not require constant changing.

Place the tin into a saucepan of boiling water which is kept boiling till the anti-philogistine is hot.

Spread it with a warm spatula on to the smooth side of a piece of lint. Apply it to the affected part, cover it with a layer of cotton and put on a bandage or a binder.

MUSTARD POULTICE

This is a mixture of mustard and linseed meal in the proportion of 1 to 8 parts of linseed meal for an adult and 1 to 16 parts for a child. The mustard is mixed with the dry linseed before adding the boiling water and made in the same way as a linseed poultice.

It is always advisable to smear the skin with a little olive oil or vaseline or any oil before these poultices are applied, or cover the poultice with a piece of fine muslin.

Mustard poultice should be kept on till a burning sensation is experienced. It should not be repeated except when ordered

by the doctor. It should not be kept longer than 20 minutes to half an hour. The patient's sensations form the best guide as to the length of time over which a mustard poultice should be left on.

The place of this poultice is now to a great extent taken by mustard leaves, which simply require to be wetted and applied.

CHAPTER XIV

LOTIONS, PAINTS, PLASTER

A lotion is a liquid preparation for external use. The part to be treated may be soaked in lotion, irrigated with it, or the lotion may be applied on lint or linen.

The antiseptic lotions most commonly met with in nursing are standard strength solutions as carbolic acid solution 1-40, boric acid lotion, saturated solution, or in 1 in 10, perchloride of mercury 1-1000, biniodide of mercury 1-1000, iodine lotion, dettol lotion, potassium permanganate lotion, Lysol lotion, lead and opium lotion, argyrol lotion for the eye, protargol lotion for the eye, calamine lotion (a sedative lotion for irritated conditions of the skin, eczema, etc.)

OINTMENTS

For applying medicament in a thick coat over an affected part, an ointment is useful. Sulphur, boric acid, chrysarobin, red iodide of mercury, zinc oxide, yellow oxide of mercury, etc., are made into ointments by using a medium like soft vaseline.

DUSTING POWDER

Dusting powders have their use in antiseptic dressing and keeping the skin sweet and free from clamminess. Boric acid, zinc oxide, bismuth, starch, powdered camphor, talcum, cibosol, arrowroot are used as dusting powders.

PLASTER (*Emplastrum*)

Plasters are made by heating extracts and spreading them on a linen or silk. Examples are: belladonna plaster, mustard plaster, mercurial plaster, opium plaster, capsicum plaster, cantharides or blistering plaster, etc.

Generally plasters are applied dry but mustard plaster is applied moist. They are all warmed before application.

Opium plaster is sedative or soothing. Cantharides plaster is a counter-irritant and vesicant, too. Mustard plaster also is a

counter-irritant. Adhesive plaster or sticking plaster is useful in fixing dressings.

PAINTS

Sometimes medicines have to be applied on the skin or in the cavity of the mouth and the nose in the form of paints.

Tincture iodine paint is the most common paint. Mandel's pigment is a paint for the throat. So is tannic acid glycerine paint. It is useful in inflamed condition of throat and tonsils.

Use a cotton swab for painting.

CHAPTER XV

DOMESTIC HYGIENE

The kitchen should not be near a latrine. The smoke and smell of cooking should not get into the rest of the house. It should not be on the side of a busy road and thus be exposed at all times to the dust and the impurities it contains. It should be provided with flyproof automatic closing doors and windows. The openings for the exit of the smoke should be as near the ceiling as possible. It should have floors with impervious materials such as cement concrete or brick-on-edge and have proper arrangements for washing.

The kitchen should be large and well-ventilated. Provision must be made for the escape of smoke. Smoke always irritates the eyes and produces diseases of the eye. The kitchen should be fitted with shelves, and everything in it must be kept scrupulously clean. An abundant supply of good water is, therefore, very necessary.

The water should be kept in a covered cistern provided with a tap. The cistern must be kept very clean and the water in it carefully guarded against pollution of any kind.

The cooking utensils must be daily washed and scrubbed. In many families where much is spent in food and cooking, this necessary thing, the daily scrubbing of cooking utensils is not done properly.

Cooking utensils should be cleaned with boiling water both before and after use. Utensils which are used for washing dishes, etc., should not be used as cooking vessels.

Brass vessels are best for cooking. But many have to use earthenware utensils. These should better be changed as often as possible. A sanitary way of cleaning earthenware vessels is to burn them. After all food material is scoured off, clean the vessels by burning over a slow fire. After this treatment the vessel becomes like a new one for cooking purposes.

Dirty dish-clothes are most dangerous. Tainted dish-clothes contain germs. They have been known to cause cholera. Therefore, dish-clothes should be kept carefully clean.

Milk should be kept in a cool place. It should always be covered. No flies should be allowed to sit on milk. These are carriers of the germs of typhoid and cholera. They sit on contaminated stools of patients and with soiled feet come and sit on milk and other articles of diet. Polluted milk disseminates cholera and typhoid.

All vegetables that are eaten raw such as carrots, cucumber, radish, etc., should be properly cleaned before they are eaten. Various kinds of eggs of worms such as ascaries, akyllostomum, etc., and the germs of infectious diseases cling to the outer surface of the vegetables. All decayed portions of vegetables should be removed.

Keep just enough water to boil the rice and vegetables. The conjee is highly nutritious. It should be given to the cattle. It can be drunk by human beings also.

Clothes which are kept in boxes and trunks and not aired and exposed to the sun at frequent intervals become mouldy and get destroyed. They are eaten by insects and holes are formed in the clothing. Warm clothing and blankets are particularly spoiled by insects. The bedding also should be exposed to the sun very frequently. The bedding and clothing of sick persons should be daily exposed to the sun. Neglect of these precautions predisposes to the outbreak and spread of infectious diseases.

Food should be eaten fresh after cooking. Boiling kills germs or microbes. Germs enter the cooked food through flies coming and sitting over food or utensils. Water used for washing plates and vessels may contain germs and may contaminate food, where water used is known to be impure and from contaminated sources. Cold water may be used for washing purposes and also for drinking. Where the source of water is doubtful and during epidemic, great precaution must be taken. All water used for drinking, cleaning of utensils and for washing and cleaning the mouth should be boiled water. Mere warming is of no use.

Cooked food should always be covered so that no flies can sit on it. During epidemics of cholera and typhoid food should be served hot. The hands should be washed free from all dirt. Nails should be pared close and kept free from dirt.

Frequent heating of food is bad. Vitamin A in food is destroyed by heat.

Eating from the same plate is bad and unhygienic. It is indeed a very bad practice. Many diseases like tuberculosis, pyorrhoea, etc., may pass on from one to another by contact through food eaten from the same plate.

During feasts scrupulous cleanliness must be observed. Only clean men free from infectious diseases should be allowed to cook and serve. They should be examined. They should clean their bodies, wear clean clothes and have clean nails and clean hands. They should have clean habits. Perspiring men serve food and drops of perspiration fall on food. Avoid them.

CHAPTER XVI

INFANT FEEDING

When a new born child and its mother are healthy, the child should be entirely breast fed for the first six or eight months of life.

After birth the cleaned and wrapped baby should at once be put to the breast for sucking.

As soon as the baby begins to suck, the womb will contract and become small and hard.

The nipples should be cleaned, rubbed and washed with hot water and boric lotion very thoroughly before the child is put to the breast. The fluid that comes out of the breast is laxative and is good for the baby.

During the first three days the secretion of milk in the mother's breasts is not yet established. Only a thin, clear fluid known as "colostrum" is exuded; but the child should, notwithstanding, be put to the breasts, both to stimulate the production of milk and because this fluid has a laxative action upon the child's bowels.

No other food is necessary for the first three days.

When the milk flow is well established, the child should be fed at regular intervals of 3 or 4 hours, with a longer interval at night for about 10 minutes at a time. By this regularity both the child's digestive organs and the mother's breasts are rested.

After birth, the baby should be put to both breasts for not more than two minutes each side. After this the feeds should be at regular intervals six hourly the first day, four hourly the second and three hourly on the third, increasing the time gradually up to 10 minutes for each breast which is the average time needed by a normal baby.

A healthy baby can be fed four hourly from birth. He does not need a night feed.

If for any reason the mother cannot nurse, recourse may be had either to a wet nurse or to artificial feeding. If a wet

nurse be chosen she must be healthy and her child should be about the same age as the foster child.

In any case, milk in some shape should be the only food till the age of six months.

The simplest and the best substitute for mother's milk is cow's milk slightly modified.

When the infant has to be fed by hand, it is necessary to decide on the choice and preparation of the food, the quantity to be given and the frequency of the feeding.

The first step towards humanizing milk is to reduce the protein content to the right proportion. This is most easily done by diluting with an equal quantity of water. After dilution, fat and sugar must be added to bring the proportions again to those of breast milk. The proportion need not be changed from the age of 3 months up to 10 months.

Lime water is usually added to make the curd more flocculent.

The best form of sugar is lactose, or sugar of milk. It is very easily digested and not likely to cause fermentation in the intestines as cane sugar.

Foods containing starch should never be given to children under six months, as the digestive ferment dealing with it is absent and the process of converting it into sugar before digestion cannot take place.

The first feeding of the day should be given at 6 a.m. and the last at 8 p.m.

Progress will be indicated by the existence of a happy normal infant, steadily increasing in weight in proportion to his age.

Underfeeding is indicated by height, stationary or decreasing, constipation and hunger cries. In some cases small stools are passed frequently.

Overfeeding is indicated by too great increase in weight, vomiting, colic, diarrhoea with large green stools. The child cries and draws his legs up about 2 hours after feeding.

Whenever the child cries the mother will try to soothe it by putting her nipple to the mouth of the child. This is an injurious practice. There may be many reasons for the child's cry.

The child needs $1\frac{1}{2}$ ounces of milk for every pound of its weight per day.

The breast and the nipples should be washed with warm water every time the child is put to the breasts.

The cups and spoons used should be cleaned bright every time after use and washed with boiling water.

A child needs as many ounces of milk per feed as the age in months plus one ounce.

CHAPTER XVII

FEEDING THE SICK

All food during illness should be given at regular intervals and in stated quantities. This will be determined by the doctor. The nurse should note down the amount of food taken by the patient during the twenty four hours.

Ordinarily something should be given in the morning, noon, afternoon and evening. If the patient can take a pound of milk at a time, three feeds are quite enough. If he can take only a few ounces at a time, then feeding must be continued at close intervals.

All patients who are unable to sit up should be fed from a feeding cup slowly. The head should be slightly raised by placing the left hand under the pillow. A napkin or a towel should be kept under the chest.

In nursing an unconscious patient, rouse him up. Do not pour anything into the mouth of an unconscious man. The liquid cannot go down the throat; it may enter the trachea or wind-pipe and cause choking and consequently death.

When there is difficulty in swallowing after operation on the tongue, attach a few inches of rubber tubing to the spout of the feeding cup. The end of the tubing is then introduced far back at the side of the mouth and the food poured in in small quantities at a time. The act of swallowing takes place almost involuntarily. This method should be adopted also in partial unconscious cases. A bent glass tube or a piece of rubber tubing or a quill which is used for iced drinks placed in the tumbler containing the feed can also serve the purpose.

NASAL FEEDING

The apparatus consists of the barrel of a two ounce glass syringe or a glass funnel which can hold about 2 to 4 ounces and to which is attached a rubber tubing $1\frac{1}{2}$ foot in length. It is connected by a small glass tube 2 inches long with a rubber catheter.

Place the patient in the recumbent position. The patient should close his mouth, Stand on the right side of the bed. Place the bowl beside the patient on the left. Empty the apparatus of water. Leave the funnel downwards in the water in order to exclude air when the catheter is being inserted. Lubricate the catheter with sterilised olive oil. Quickly insert the catheter into the nostril in a backward and downward direction. See that the catheter is in the right position and not in the wind-pipe. If it is introduced into the windpipe there will be coughing. Then pour in the feed quickly and evenly till it is finished. Withdraw the catheter slowly. Nasal feeds are usually given four or six hourly. Use the nostril alternately.

Afterwards, wash the apparatus nicely. Keep the catheter in boric lotion.

RECTAL FEEDING

When feeding cannot be done through the mouth or when it is not advisable to do so, rectal feeding is necessary.

Wash the bowels by an enema. Introduce slowly through a glass syringe the liquid food or a solution of glucose.

CHAPTER XVIII

DIET FOR INVALIDS—I

Diet is a subject of the greatest importance in invalids and healthy persons.

This body is like an engine. It needs fuel to supply the muscles, etc., with energizing power for the various bodily activities. It needs also building materials to repair loss from wear and tear.

Illness needs considerable change of diet, usually by way of diminution.

In fever, when the person is confined to bed, not more than half the diet of the healthy, and of this very little of protein, must be taken.

Abstention from food can do no harm in those diseases in which the attack will last for only a few days. Fasting will do immense good. It will overhaul the whole system and give rest to the digestive organs and other organs, too.

In all acute diseases liquid diet should be the general rule.

During sickness the digestive system also is weak. Food should be reduced or abstained from in disease.

Even animals have this instinct. They refuse to take food during illness. Man only breaks all laws of health and hygiene on account of his egoism and arrogance. One takes anything and everything even during serious illness and thereby brings much unnecessary suffering and complications in disease.

In some cases milk diet is beneficial, in others a low diet; in some others vegetable diet. For invalids simple, bland, nourishing diet is essential. In some cases whey made by clotting milk with rennet, then straining and flavouring, is useful. To some, bread and milk, tapioca or patent foods such as Benger's, Allenburry's are useful.

Barley water, arrowroot, milk and water and thin oatmeal constitute low diet.

Soft food may be given to invalids and convalescents. Old rice is good for patients.

DRINKS

ARROWROOT

Take two teaspoonfuls of the best arrowroot. Make it into a smooth paste with a little milk. Boil half a pint of milk with a lump of sugar and pour it while boiling on the arrowroot; stir quickly all the time. This may be flavoured with lemon essence.

Water arrowroot is made in the same way using water instead of milk. It can be flavoured with lemon and sugar or lemon and salt.

BARLEY WATER

Barley is a useful material for drink for patients. Barley water is a cooling and refreshing drink. It flushes the kidneys and the urinary tract.

It is a bland drink. It is beneficial in intestinal disorder resulting in vomiting or diarrhoea. It is useful in dysentery. Combined with lemon it is a mild diuretic drink in retention of urine and renders it less irritating to the bladder. It is also used as a mild diuretic in diseases of the kidney. A diuretic is a substance which increases the flow of urine.

Barley water acts as a demulcent or mucilage medium for the preparation of enema, which should be retained, such as opium enema in cases of excessive diarrhoea.

One ounce of pearl barley boiled in a pint of water makes a palatable and soothing drink. It can be mixed with lemon, sugar or salt to taste.

Sago and barley require 15 minutes boiling in water for the bursting of the starchy cells.

Barley water may be made from Robinson's Patent Barley flour. This is a quicker method.

Two teaspoonfuls of the flour is mixed into a small paste with a little cold water and added to a pint of boiling water. Boil for 10 minutes. Stir constantly. Add sugar to taste. Orange juice or lemon juice may be added.

For diluting milk add one ounce of barley water to 3 ounces of milk for an adult. For infants under three months add one teaspoonful of barley water to 3 ounces of milk. Do not boil barley water again, as this causes fermentation.

BAEL SHERBET

Mix the pulp of the ripe fruit with some water and strain. Add sugar to taste.

This is a cooling beverage. It is useful in diarrhoea and dysentery. It is a laxative too. It softens hard stools.

HONEY AND MILK

Stir a teaspoonful of honey into a cup of hot milk. This is very soothing when one has a cold in the head.

ISAFGUL WATER

Put half an ounce of Isafgul seeds in a tumbler of water. Stir the water well. Add sugar and drink. This is a soothing, demulcent drink in dysentery.

IMPERIAL DRINK

One tablespoonful of cream of tartar (acid potassium tartaricle), one pint of boiling water, sugar and lemon peel for flavouring.

Dissolves the cream of tartar in the boiling water and add the sugar and flavouring. Strain and serve when cold.

JUNKET

Take one pint of fresh milk, 1 to 2 teaspoonfuls of essence of rennet and one ounce of sugar. Heat the milk till it becomes lukewarm. Add the sugar. Pour the milk into the cup in which the junket will be served. Then add the rennet. When set it is ready to be served.

LEMONADE

Take $\frac{1}{2}$ pint of boiling water, one lemon cut up into slices, the thinly pared rind of one lemon and sugar. Mix all with the boiling water. Allow it to remain till cold. Strain and serve.

LINSEED TEA

Put half an ounce of whole linseed with a pint of boiling water into a covered jar. Leave it by the side of the fire for 2 hours. Strain it and flavour it to taste with lemon and sugar. Add hot

water if it is too thick. Use it quite hot. It is useful in sore throat and chest affections.

OATMEAL DRINK

Boil a tablespoonful of oatmeal in a pint of water for 20 minutes. Stir it now and then. Add ginger, lemon and sugar according to taste. It is a refreshing drink for thirsty patients. There is a small amount of nourishment in it.

SAGO

Boil $\frac{1}{4}$ ounce of sago in $\frac{1}{2}$ pint of cold water for 15 minutes. Stir frequently. Sweeten to taste. For fever patients give very thin sago congee. It may be mixed with milk.

Milk mixed with sago or barley is a better and more digestible article than milk alone. In convalescence when the patient feels hungry give thick sago.

SKIMMED MILK

Place one pint of milk in a shallow vessel. Simmer for one hour. Cover carefully and set aside in a cool place. Skim off the cream. Use the remaining milk. Skimmed milk is denuded of fat and the fat soluble vitamin A. It contains the milk protein, sugar of milk, mineral substances, thiamin, riboflavin, nicotinic acid and vitamin C. The skimmed milk has more nutritive value than the components taken off by separation.

TAPIOCA

$\frac{1}{4}$ ounce of tapioca, one pint of milk. Preparation as that of sago, but boil for half an hour.

TAMARIND WATER

This is a very refreshing drink. Add a pint of hot water to a tablespoonful of tamarind. Set aside to cool.

TOAST WATER

Take a slice of stale bread. Toast it carefully without burning. Put it in a jug and pour over it boiling water. Let it stand to cool.

WHEY

This is a harmless diet. It has great sustaining properties. It should be given to patients who are to be kept on starvation diet for a long period.

Whey (rennet) is prepared with one pint of unboiled milk and one teaspoonful of essence of rennet. Heat the milk to a temperature of 105 degree F., add the rennet and set aside in a warm place till the curd has set. Then strain through muslin. The whey is ready now.

Whey may be used for purpose of diluting milk, in the same way as barley water and in similar proportions.

When a patient cannot tolerate fat and also protein as in typhoid he may be given whey which contains the sugar of milk and the vitamins, minus fat and proteins.

Boil the milk. Add a few drops of juice of lemon. A little alum also is a suitable substance for separating proteins and fats. Use a few drops of the alum solution. Strain through a cloth.

OTHER DIETS

CHURA

This is beaten rice. It preserves the outer nutritious coating containing the vitamins and mineral salts. It is kept soaked in water. The flattened grains get swelled and soft. This is a light diet for invalids. It can be sweetened.

DALIA

This is broken wheat. Boil this in water. Add milk. Now add salt or sugar according to your taste. This is very nourishing and useful both for convalescent cases and patients.

GREENS

Spinach (Palak), Purslane (Kulpa.), Fenugreek (Methi) and Dill (Soya). These are the best of sick diets. First heat sufficient ghee or oil. Then add the greens precisely chopped up and washed, cover and cook on a slow fire. Give an occasional stir to prevent burning. Add salt when the water has evaporated. For the sick, greens should first be well boiled in water, then fried in ghee.

GRUEL

Half a tablespoonful of fine oatmeal or patent groats; $\frac{1}{2}$ to one pint of boiling water or milk.

Mix the oatmeal with a little cold water or milk into a smooth paste. Then add to the remainder of the boiling milk or water. Continue to boil till the mixture becomes thick. Stir constantly. Sugar or salt may be added. Serve the gruel hot.

MURI

This is another preparation of rice. It is a fried product. It is destitute of outer coating. It is easily digestible. It is a particularly dextrinised starch. Sand is used in its preparation. It must be washed free from sand.

MUNG KITCHADIE

Broken green gram is mixed with rice and boiled with sufficient quantity of water. Add ghee. This is an easily digestible food for patients and convalescents.

OATMEAL PORRIDGE

Boil one pint of water in a saucepan. When it begins to boil, sift in the dry oatmeal with one hand while you stir with the other. Boil it for half an hour. Stir it constantly. Serve this with milk or cream. Add sugar, salt or treacle according to taste.

MUNG DAL

Mung Dal is the lightest of dals. It can be given to invalids. Mung Dal water prepared by cooking Mung Dal and removing the supernated fluid is very good for sick persons.

VEGETABLES

Vegetable soup made out of Lauki and Parval, is highly beneficial for invalids. Green leaves are simply steamed for sick persons.

FRUIT JUICES

Juices of lemon, lime, pomegranate, orange, apple are very useful. They are helpful in nourishing the body with mineral salts and vitamins and reducing acidosis.

CHAPTER XIX

DIET FOR INVALIDS—II

BENGER'S FOOD

This is an easily digestible, and agreeable for the use of invalids, convalescents or the aged and where the digestive rest is desired; 15 minutes digestion is usually sufficient. This is widely prescribed by the medical profession with decisive advantage, and appreciable benefit. Mix together in a basin to a smooth paste or cream by means of a spoon 1 tablespoonful of Benger's food and 4 tablespoonfuls of cold water. To this cold mixture add half a pint of milk which must have been first heated in a saucepan to the boil. Add this to the cold mixture in the basin when 'just off the boil' slowly and whilst stirring. Now set aside the basin containing the mixed liquids away from heat for 15 minutes to allow the food to digest. Then return to a clean sauce-pan and heat to the boil. Remove from fire. When cool enough it is ready for use. This preparation will generally be found the most useful for children one year and over and for adults. The prepared food is best served when freshly made, and in warm weather; in no case should it be kept longer than 8 hours. Store the prepared food in a cool place, covered well to keep out dust, etc. It should always be well stirred before taking up the amount to be warmed up; it may be strained if necessary. Fresh cow's milk should be used only for special reasons and temporarily.

Note: By 'just off the boil' is meant, when the milk or milk and water mixture has been heated and allowed to just settle down after it had first risen in the pan. Add the hot fluid slowly and while stirring. Let the mixed liquids in the basin stand away from the heat for 30 minutes, lightly covered to prevent access of dust. Then return it to the saucepan and raise to the boiling point, stirring all the while. Set aside in a covered vessel to cool when it will be ready for use. The prepared food should be quite fluid."

OVALTINE

This contains malt, milk and eggs flavoured with cocoa. This is a tonic food, beverage and an excellent restorative and body builder. This is of considerable use during illness or convalescence and in various forms of debilitated conditions. It may be prepared with milk or with milk and water; should the latter method be adopted, take a quarter of a tea-cupful of cold milk and fill up with boiling water. If so desired unsweetened condensed milk may be used. Then take 2 or more teaspoonfuls of ovaltine and stir gently into the liquid until dissolved. Add, if necessary, sugar to taste. The beverage should not be boiled but heated only to just above drinking temperature.

PEPTONISED MILK

This is a predigested form of milk which can, in the absence of all other food, supply to the system for an indefinite period with the nutrient which it requires. To the invalids, convalescents, the aged and persons suffering from fever with vomiting, its restorative properties are invaluable; while its property of not curdling in the stomach makes it especially useful in the case of delicate children. It simply requires dilution with hot or cold water and can thus be prepared in an instant, making a most palatable beverage. Or it can be added to coffee or tea. It makes delicious milk jellies also. Dilute one part of this milk with seven parts of water, stirring until the mixture is complete. When used for delicate children, add twelve parts of boiled water. This is manufactured by the chemists, Savory And Morre.

GRAPE NUTS

Grape Nut is a highly nourishing cereal food, made from a mixture of malted barley, whole wheat flour, salt and water. The mixture is raised by yeast, baked in loaves, then sliced, further baked and crushed into granules. This brings about a marked degree of conversion of the carbohydrate elements, resulting in the development of dextrin, maltose, and dextrose—readily utilized by the animal economy to yield heat and energy. Grape nuts contain 95.25 per cent of solids, including 11.88% of protein; 78.76% of carbohydrates and mineral salts. The mineral salts include potassium chloride, sodium chloride, calcium phosphate, calcium sulphate, and potassium phosphates, magnesium phosphates, iron phosphates and

silica. Grape nut is very good for building bones in children and when combined with cream or milk, it is admittedly a complete food. Grape Nut is of great services in cases of malnutrition in children; gives a liberal dish for breakfast and a grape-nut pudding for lunch or dinner for children and note the difference in their condition within a month.

MASHED POTATOES

Boil potatoes plainly. Mash them, rub through a fine sieve and add salt. This is useful for children.

POTATO CREAM

Take the floury part of a baked potato and rub it up with milk to the consistency of cream. This is useful for children.

RICE PUDDING

Take one tablespoonful of rice and wash it well. Put this in a saucepan containing 1 pint of milk. Add 1 or 2 tablespoonfuls of sugar. Cook slowly with a gentle heat in an oven for 2 hours.

TOAST WATER

Toast a slice of a new bread quite brown, but not burnt, and then put it in a jug of boiling water. When quite cold, remove the toast and strain through a muslin. Now it is ready for drinking. Toast water can be mixed with apple water with much advantage. It must be remembered that burnt bread destroys toast and water.

HOT MILK AND SODA WATER

Scald the milk. Scalding is raising the temperature of the milk just to boiling point only. Pour out half a tumbler and fill up the tumbler with soda water. Drink during effervescence. This is useful in fevers, chills and rigors. This will stop vomiting and settle a stomach that is being upset. This is a good diet for dyspeptic subjects when they are in acute agony.

LINSEED TEA

Take 3 tablespoonfuls of linseed (whole) and put this into a teapot or jug and pour in a quart of boiling water. Allow this to stand for half an hour. Strain and sweeten with either sugar or honey. This is serviceable in children's cough. Half an ounce of liquo-

rice root may be added to the linseed. Liquorice is a valuable addition. Bran tea is prepared in the same manner.

IMPERIAL DRINK

This refreshing drink possesses refringent properties to quench thirst. Take 2 teaspoonfuls of cream of tartar, 2 table-spoonfuls of white sugar, the thin rind of a lemon cut into pieces and put them into a jug. Pour in the jug 2 pints of boiling water. Let this stand for some time. When the water cools down, strain. This is useful in fevers and Bright's diseases of the kidneys.

PEPTONISED MILK

Peptonised milk is made by taking a quarter of a pint of cold water mixing with it a peptonising tablet or peptonising powder, adding this to a pint of fresh milk in a quart bottle, and finally placing the bottle in a pan of water just so hot that the hand can be immersed in it without pain. The bottle of milk is left in this bath according to the amount of digestion desired, but not longer than ten minutes.

If the milk is not immediately used, it must be placed upon ice or brought quickly to the boiling point in order to stop the action of peptonising ferment. It is often sufficient to administer one or two teaspoonfuls of liquor pancreaticus along with the milk, without any digestion outside the body.

CHAPATI

This is made out of wheat flour. It is a thin form of cake that is being largely consumed in North India. Chapati is a highly nourishing food. It should be eaten quite fresh; if stale, it becomes hard and undigestible. Wheat flour is made into a nice paste with a little quantity of water and ghee which is beaten several times with the closed fists and finally made into a big bolus which is divided into several small round balls which are spread up into thin round cakes and fried in a pan with a little ghee. Generally one pound of flour is made into 5 to 6 cakes.

JUNKET

This is an excellent milk-food for invalids and convalescents. It is an artificial preparation of milk prepared generally by adding rennet (a kind of ferment) to it and allowing it to stand until it

curdles firmly. This can be taken alone or sweetened with sugar. This can be flavoured if desired, with lemon or vanilla. Junket can also be prepared by adding 1 tablespoonful of pepsin cordiale to 1 pint of luke warm milk. After mixing, allow it to stand till a firm curd forms.

ROBINSON'S PATENT GROATS

This is a valuable diet for nursing and expectant mothers. Made into milk gruel, this is most useful in enabling mothers to nurse their infants. It promotes a free secretion and improves the nutriment of the milk. It may be also prescribed with advantage to expectant mothers. For invalids and the aged it is an ideal breakfast and supper food being delicious in flavour, nourishing and easily digested. This is also a splendid food for infants, when weaned. Used with milk it contains all the elements of bone, muscle, nerve and fat.

OATMEAL PORRIDGE

Oatmeal porridge is an exceedingly wholesome and nourishing food. It is easy of digestion also. Oatmeal contains lime, which is necessary for hardening children's bones. There are 3 kinds of oatmeal, coarse, medium and fine. And the selection should be made according to the taste of the individual. Put a handful of coarse oatmeal in a saucepan which contains half a pint of boiling water. Add a pinch of salt. Boil for half an hour, stirring frequently to prevent the formation of lumps.

BUTTERMILK

Buttermilk as usually made is milk savoured by the action of lactic acid germs. These germs, which are harmless, or saprophytic, grow rapidly in milk and retard the growth of other more harmful germs. A piece of meat placed in sour milk will not decompose; a piece of meat that is decomposed will lose its odour in milk. This is due to the action of the lactic acid germs, which antagonize the work of the putrefactive forms. It has been supposed by some prominent men that buttermilk is almost a preventive of old age. Methchnikoff believed that with proper attention to the intestines, with the use of soured milk one might live to be 200 years old.

Buttermilk is a very satisfying means of sustenance in typhoid or enteric fevers and many other bowel complaints.

Made with lactone tablets of Parke Davies & Co., it is of high nutritive value and is well borne. One tablet will convert 32 ounces of fresh milk into pure rich buttermilk.

ALMONDS

There are two varieties of almonds, viz., the bitter and the sweet or Jordan almond. The bitter almond is poisonous and should be rejected. Almonds possess highly nutritious properties. Almond bread and almond biscuit are of great service as valuable foods for diabetic persons and delicate children. Almonds and milk are exceedingly useful combinations. Soak a tablespoonful of sweet almonds in a tumblerful of hot milk; add a dessertspoonful of sugar. Drink after an hour, twice daily, early morning and at bed time. This is a splendid body-builder in run down conditions.

BARLEY WATER

This is made out of Barley or tailed wheat (Val-kothumai). Put 2 heaped teaspoonful of washed pearl Barley into 1 pint or 20 ounces of cold water, boil slowly down to $\frac{2}{3}$ of a pint and strain through a muslin. This can be made out of Robinson's patent Barley which is a powder. Make a thin paste with a heaped teaspoonful of Robinson's patent Barley. Stir into it half a pint of boiling water, pour into a saucepan, and boil for 15 minutes; stirring all the time. A little sugar or salt may be added if desired according to taste.

Barley water is a pleasant and refreshing drink which flushes out freely the kidneys. In burning sensation of the urine and diarrhoea of children it is used as a substitute for milk. A bottle of barley water can be put into the refrigerator, before administration for fever cases. When the baby throws out curd after every feed, the addition of barley water to cow's milk will render the curd thin and fine and the milk easily digestible. It is best to begin first of all, as a simple practical rule, with a dilution of half and half; that is to say, give as much of cow's milk as water. If you are dealing with a very young child, add two parts of barely water to one part of milk. Dilutions weaker than this are useless for children and they will not thrive well. The addition of a little lemon juice, 1 to 2 teaspoonfuls is a great improvement to barley water. You can put a small piece of lemon peel into the solution, when boiling is half done.

APPLE WATER

Slice without paring or peeling 2 or 3 ripe apples and boil in a quart or 24 ounces of water till the fruit is soft. Let it stand till it cools. Strain through muslin and serve after sweetening to taste. This is a pleasant and nourishing drink in feverish conditions to quench the thirst.

ARROW ROOT

Put 2 teaspoonfuls of good arrowroot into a basin or sauce pan and mix to a smooth paste with cold water. Then pour thereupon half a pint of boiling water or boiling milk and stir it well to keep it smooth. Place the basin or saucepan on the fire till it is ready to boil, then take it off and allow it to cool. Add 1 to 2 teaspoonfuls of sugar.

OATMEAL GRUEL

This can be prepared either with water or with milk. Mix into a smooth paste with 2 tablespoonfuls of fine oatmeal or groats in a saucepan. Add a pint of milk or water and simmer gently for half an hour, stirring well frequently the mixture to prevent the formation of lumps. Strain and season with salt or sugar.

WHEY

Dissolve a teaspoonful of sugar in half a pint of fresh milk and heat the milk to a little more than blood heat or 100 deg. F. Add to it 2 teaspoonfuls of essence rennet. Rennet is the milk curdling ferment. Remove the milk from the fire and allow this to stand for four minutes. Break out the curd and strain through a muslin. One or two tablespoonfuls may be given to babies and invalids.

Whey can also be prepared by boiling a pint of milk with one or two teaspoonfuls of lemon-juice or vinegar. The curd can then be separated from the whey by straining.

RICE WATER

Wash well 6 tablespoonfuls of rice and put it into a saucepan containing a pint of boiling water. Boil for an hour. Strain and flavour with either a small quantity of salt or sugar according to taste.

BREAD AND MILK

Cut into small square pieces 2 slices of bread and put them into a small basin and pour a tumblerful of boiling water on it. Cover the vessel with a suitable plate and let it stand for five minutes before serving. This is useful in feverish conditions, dyspeptic states, with heaviness of stomach.

VIROL

Virol is an agreeable preparation of very considerable nutritive value. It is easily digestible and capable of readily being absorbed into the system. This is a vitamin product which contains red and yellow bone marrow, eggs, malt extract, lemon juice, phosphates and lime salts. Virol builds up the dilapidated frame of bony babies and is of enormous value in the treatment of infantile ailments such as rickets, wasting, etc.

Virol should be taken after meals, 3 times a day. Adults commence with a teaspoonful and increase to a dessertspoonful. It may be spread upon toast or biscuit or added to milk porridge. For children, commence with an egg-spoonful and increase to a teaspoonful. For infants, commence with an half egg-spoonful and increase to an egg-spoonful.

CHAPTER XX

FOOD FOR THE INVALIDS

BAEL FRUIT

The pulp of the ripe fruit is mixed with some water and strained. Add some sugar to sweeten it. Bael is an aperient. It moves the bowels. It is useful in diarrhoea and dysentery. It is a cool drink. It softens hard stools.

BARLEY WATER

Wash two ounces of pearl barley with cold water and throw away the washings. Then boil in a pint of water for 20 minutes in a covered vessel and strain. You can add some sugar or salt to taste. You can add some milk if you like. It may be flavoured with thinly cut lemon peel. When the liquid is boiling you can add the lemon peel.

BREAD AND MILK

Boil the bread in the milk for a minute. Add sugar to taste. Or cut slices of bread and put them in a basin and pour boiling milk over it. Add sugar and cover the basin for a minute or two and then serve.

GRUEL

This is a favourite drink for a feverish cold. You can make gruel out of oatmeal or barley flour. A tablespoonful of oat flour is mixed into a paste with water. Add half a pint of water or milk and boil at least for five minutes. Add salt and sugar to taste. Barley gruel can be made in the same way.

IMPERIAL DRINK

Take half an ounce of cream of tartar, the juice of one lemon and two tablespoonfuls of white sugar. Put the whole in a jar

and pour over them one quart of boiling water. Cover till it becomes cold. This is a useful drink in fevers.

ISAFGUL WATER

Put half an ounce of Isafgul seeds in a tumblerful of water. Clean the seeds first. This may be sweetened and drunk. This is a very good demulcent drink in dysentery.

JUNKET

Junket is really partially digested milk. It is made into a semi-solid form by adding rennet. Heat the milk first to about the level of body temperature, 98.4 F. Then add the rennet and put the milk in a cool place to set. The solid part or curd is surrounded by a clear liquid, the whey. Whey is also nourishing as it has a little sugar, fat and salts dissolved in it.

MILK PUDDING

Rice or sago or tapioca or arrowroot or corn flour may be used. They are cooked with milk, and a little sugar and salt added. A few drops of the flavouring essences of lemon or almond or vanilla may be added.

OATMEAL PORRIDGE

Mix a large tablespoonful of oatmeal with 2 tablespoonfuls of cold water. Stir well and pour into a pint of boiling water in a saucepan. Boil and stir well for 10 minutes. Add salt or sugar. Milk may be used instead of water.

This is useful in constipation. This is a nourishing food. This should not be taken when there is a tendency to diarrhoea.

RICE WATER

Wash well one ounce of rice with cold water. Boil slowly for one hour in a quart of water and then strain. Add a little salt. This is a useful drink in fever, diarrhoea.

TAMARIND WHEY

Boil a pint of milk and while it is boiling add two tablespoonfuls of tamarind. Strain and sweeten to taste. This is a cooling and slightly laxative drink.

WHEY

When a patient cannot tolerate fat and proteins as in Typhoid fever, he may be given milk which is free from fat and proteins. Whey contains the sugar of milk and the vitamins. This is the most harmless diet. It possesses great sustaining properties. Boil some milk. Add a few drops of juice of lemon when it is boiling. Milk will suddenly separate out into a clear greenish liquid. You can add a little alum also when you cannot get lemon juice. Strain the whey through a clear cloth.

PAPAYA WHEY

Add freshly drawn milky juice of green papaya little by little to hot milk, till the milk cracks and the curds separate.

Papaya whey contains some peptonised milk. It has greater food value than ordinary whey.

DAL AND PEA SOUP

Put a teaspoonful of ghee in the saucepan on stove or fire. Put one tablespoonful of moong dal and one tablespoonful of shelled peas. Stir them briskly for 5 minutes. Add a pint of water. Cover it. Let it simmer for half an hour. Flavour it with pepper, turmeric, jira (cumin) and salt. Serve.

POUNDED RICE GRUEL

Wash well with cold water 2 tablespoonfuls of parboiled rice. Simmer in a saucepan with a pint of water for 20 minutes. Strain. Flavour with lemon juice. Add a little salt, and serve.

This is more easily digestible than barley water. It has better taste. It is better tolerated in bowel diseases.

SOOJI PORRIDGE

Add two tablespoonful of Sooji (semolina) to one pint of boiling water. Slowly cook this for 20 minutes till it is sufficiently thick. Stir briskly with a spoon. When the Sooji is partly boiled add milk and sugar.

POWDERED MILK FOOD

Glaxo, Allenbury, Horlicks etc. are prepared by first making a paste of the powder with cold water in a porecelain cup and then slowly adding hot water and thoroughly mixing up with a spoon. The quantity of the powder required depends on the thickness of the preparation desired.

BARLEY GRUEL

Take two heaped up teaspoonfuls of barley powder. Make paste with a little cold water. Add more water now to make one pint.

Simmer in a saucepan for 15 minutes. Now a thin gruel will be formed. Serve with milk and sugar or with sugar and lemon juice.

You can prepare gruel in the same way with arrowroot powder.

VEGETABLE BROTH

Unripe banana sliced

Brinjal

Tomato

Parval

Spinach all minced: Half a seer.

Moong Dal 2 tablespoonfuls.

Slowly boil in a saucepan with one pint of water. Reduce it to half a pint. Add 2 pinches of salt and a few drops of lemon juice. Strain and serve.

TYPHOID BREAD

Remove the inside soft pulp of the bread. Put this into boiling milk. Make the whole thing into a paste by rubbing down with the back of the spoon.

Strain this through a fine muslin. Add sugar to taste and serve.

This is beneficial to typhoid patients during convalescence.

TOAST WATER

Put a piece of toast into a jug. Pour hot water over it. Soak this for half an hour. Strain. Add sugar and lemon juice and serve.

RICE GRUEL

Take one or two tablespoonfuls of old rice, or parboiled rice. Wash it well. Then boil in a saucepan with one pint of water for half an hour. Add salt and serve.

This is very suitable for convalescent typhoid patients.

CHAPTER XXI

SIMPLE HOUSEHOLD REMEDIES

AMMONIUM CARBONATE

This is known by the name smelling salt. It is useful in cold or catarrh of the nose. Tie a small piece in the handkerchief and smell it frequently. When one becomes unconscious, when there is shock or collapse, soon keep the bottle near his nose. He will come to his consciousness. Ammonium Carbonate is a heart stimulant. Put 5 grains in 2 tablespoonfuls of water and give this mixture. It will stimulate the heart. It is an ingredient in cough mixtures. It is an expectorant, i.e. it brings out the sputum from the bronchial tubes.

APC POWDER

This contains in equal parts 2 grains each of aspirin, phenacetin and caffeine citras. This is useful in headache, neuralgia and fever, rheumatic pains in joints and muscular pain all over the body (myalgia). Take one powder with a little hot water, milk or tea or cocoa. Aspirin and phenacetin possess the same properties viz., anodyne or pain-relieving. Aspirin produces free perspiration and brings the temperature down. Cover yourself with a warm blanket after taking the powder. You can get aspirin and phenacetin in tablet forms also. Aspirin and phenacetin have got a depressing effect on the heart, and so caffeine citras is added to correct the depressing influence of aspirin and phenacetin. Caffeine is the alkaloid or active principle of coffee. It has a stimulating influence on the heart. Do not repeat aspirin or phenacetin very frequently. Use your commonsense always.

BORAX

It is useful in ulcers of the mouth and tongue. It can be mixed with potassium chlorus. It is used as a gargle or mouth wash. Put 10 to 20 grains in a tumblerful of warm water. Add a teaspoonful of glycerine or honey and use it as a gargle. It can be mixed with honey in a mortar and rubbed over the ulcers in the mouth and the tongue. It has soothing and healing properties.

BORIC POWDER

It is a soothing powder. It can be used as a dusting powder in ringworm, wounds, discharge from the ears etc. It is used as boric lotion 10 grains to 1 oz. of warm water in washing the eyes. It is used as Boric ointment in ulcers, wounds etc. It is a mild antiseptic. It is mixed with salicylic acid, etc., in making other ointments for the skin.

CATHARTIC VEGETABLE TABLETS

It is used as night pill to relieve constipation. Take one or two or three tablets at bed time. Do not take it frequently and form a habit.

CHLORODYNE

This is a dark coloured thick fluid. It contains morphia, chloroform, Indian hemp, hydrocyanic acid and peppermint. It is agreeable to the taste. It is very useful in wind in the stomach, cholera, diarrhoea, dysentery, intestinal colic, stomach spasms, griping pain in the bowels, asthma, influenza, colds, cramps, seasickness and simple bronchitis. It may be taken in water or tea. It can be repeated in diminished doses every 2 or 3 hours. The dose is 5 to 30 drops. You can give 3 drops to a child one year old. The bottle should be kept well-corked and be well shaken before use.

EASTON SYRUP

This is an iron tonic. It increases the quality and quantity of blood. It is useful in general debility, anaemia or poverty of blood, post malarial debility. Dose: $\frac{1}{2}$ to 1 teaspoonful in a tablespoonful of water after food. It should not be taken when there is diarrhoea or irritation in the bowels.

ESSENCE OF GINGER

Strong tincture of ginger is known as essence of ginger. The dose is from 5 to 20 drops for an adult; for a child one year old, from 1 to 4 drops. It helps digestion and increases the digestive fire. It is useful in diarrhoea, flatulence or wind in the bowels, colicky pains and dyspepsia. Essence of peppermint has the same properties as those of essence of ginger.

MAGSULPH

This is an aperient. It is not drastic. It produces soft motions and removes mucus and serum from the bowels. Take one or two tablespoonfuls in a small glass of warm water in the early morning.

OIL OF CITRONELLA

This is also known by the name lemon grass oil. It is obtained from the lemon grass which gives the sweet aroma of lemon. It is useful in warding off bites from mosquitoes. Rub the feet, hands and exposed parts of the body with this oil in the evening.

PARRISH CHEMICAL FOOD

This is also known by the name Syrup Ferri Phosphus Co. This is useful in children. It is a good iron tonic for them. Give $\frac{1}{2}$ to 1 teaspoonful in a tablespoonful of water after food. It is sour and sweet.

SALICYLIC OINTMENT

This is useful in Ringworm. Mix 20 gms. of salicylic acid with 1oz of white vaseline. Boric acid can be added with salicylic acid when you make the ointment. Ten or twenty grammes dissolved in 1 oz. of methylated spirit will form the ringworm lotion. Salicylic acid, boric acid and zinc oxide with vaseline 10grains each, will form a good ointment for eczema.

TR. BENZOIN CO.

This is known by the name Eriar's balsams. It is highly useful in cuts and wounds with bleeding. It stops the bleeding at once. Soak a small thin layer of cotton wool in the tincture and put it over the cut. It will serve the purpose of plaster also. It will stick to the part firmly. Do not remove it. You can keep it for 24 hours. If it sticks very hard, apply a little bit of methylated spirit over it; you can remove it very easily. Benzoine inhalation is beneficial in consumption, sour throat, etc. It is an antiseptic. Drop one or two teaspoonfuls of the tincture in a kettle containing steaming water and allow the vapour to touch the mouth and throat. Keep the mouth wide open. Benjoine is an antiseptic.

TR. QUININE AMMONIATAS

This is very useful in nasal catarrh, cough with fever. Dose: $\frac{1}{2}$ to 1 drachm in 2 tablespoonfuls of water. Make the dose fresh.

TURPENTINE LINIMENT

This is a white liniment. It contains camphor, soap, oil of turpentine etc. It is a very useful and potent liniment. It is better than Iodex, Sloan's liniment, ABC Liniment. Iodex is sticky. The other liniments keep the parts dry. But turpentine liniment is not sticky. It keeps the parts soft. It relieves pain in rheumatism, swelling, chest pain, sprain, contusion, etc.

CHAPTER XXII

HOSPITAL FORMULAE

ASPIRIN

Dose 3 to 10 grains.

This is a white crystalline powder.

This is largely useful for the relief of neuralgic pain. It causes perspiration and acts as a mild antipyretic (that which combats against fever). It is usually given by mouth in the form of tablet and powder.

It is mixed with equal parts of phenacelin and caffeine. Then it is called APC powder. This is more effective. Caffeine acts as a corrective in counteracting against the depressing action of aspirin.

This is beneficial in also rheumatism, headache and muscular pain all over the body. Do not repeat it very frequently.

Take 5 grains with hot coffee, tea or milk and cover yourself with a blanket in the bed. You will perspire profusely. The temperature will come down within half an hour.

Codopyrine tablets, Anacin tablets, Veganine tablets, Saridon tablets, Cibalgin tablets and Genasprin tablets contain Aspirin.

ALUM

This is an astringent. It stops bleeding when applied locally in the form of saturated solution.

2 grains of alum in one ounce of water is useful in conjunctivitis or eye sore. In bleeding from piles a piece of cloth saturated with alum should be kept constantly applied externally.

This is useful in the prolapse or descent of anus.

It is used as a lotion in gonorrhoea and leucorrhoea. Dose 3 grains in one ounce of water.

It is used as a gargle or mouth wash for sores in the mouth. Dose 10 grains in one ounce of water.

Stir an alum tablet five or six times in a pot of turbid water. Turbidity will be removed.

Burnt alum is used in tooth powder. It stops bleeding. It is useful in spongy gums.

EASTON'S SYRUP

The other name is Syrup Ferri Phosphatis cum Quinina et Strychnine.

Dose $\frac{1}{2}$ to 1 teaspoonful in 1 ounce of water after food. Each drachm contains $\frac{1}{32}$ of a grain of strychnine.

This is largely used as a tonic. This contains quinine sulphate, strychnine hydrochloride, iron, phosphoric acid, syrup glycerin and distilled water.

This is taken with much advantage after an attack of malaria to purify and enrich the blood.

Iron preparations should be taken always after food. If they are taken on an empty stomach they will produce irritation of the mucous membrane of the stomach and bowels.

If there is diarrhoea they should not be taken.

Like bismuth, Iron preparations colour the motions black. Do not be unnecessarily alarmed at this.

Iron produces constipation. Take a dose of epsom salt occasionally to counteract this.

AMMONIUM CARBONATE

(Smelling Salt)

Dose: 5 to 10 grains.

Smelling of the salt will remove headache, cold in the nose and head.

It stimulates respiration and acts as an expectorant. An expectorant is a drug that brings out sputum easily.

Ammonium carbonate is useful in cough, bronchitis, and pneumonia. It is one of the ingredients of cough mixture.

Inhalation is useful in scorpion sting, insect bites, shock or collapse, fainting, etc.

There is lavender smelling salt also.

BORIC ACID

It is an antiseptic. It is used as an eye lotion in 10 grains per ounce solution. Use distilled or clean water.

A solution of boric acid is used in leucorrhoea and gonorrhoea for injection.

It is used as a dusting powder in ulcers.

Internally, in doses of 5 to 15 grains, it renders the urine acid. It disinfects the urine in gonorrhoea. It is a urinary antiseptic. It is used in a solution for washing out the bladder.

Boric ointment is a healing and antiseptic ointment for ulcers and wounds. Boric acid 10 per cent in white paraffin ointment or soft vaseline, white or yellow.

Boric acid is used to preserve milk, butter and animal food. Glycerinum Boracis is used for cleansing the mouth when affected by sores.

A four per cent solution of boric acid is used as an antiseptic wash in foetid perspiration of the feet.

Boric lint is used for giving fomentation.

PARRISH'S CHEMICAL FOOD

The other name is Syrup Ferri Phosphatis Co. Dose $\frac{1}{2}$ to 2 teaspoonfuls.

This is a good iron tonic for children. Give half or one teaspoonful in 1 ounce of water after food, once or twice daily.

CHLORODYNE

This is known also by the name Tincture Chloroformi et Morphi Co. Dose 10 to 30 drops.

To be taken in 1 ounce of water and repeated in diminished doses every 3 or 4 hours.

Useful in diarrhoea, dysentery, cholera, simple cough, influenza, colds, cramps, asthma, colic, etc.

DILL WATER

Dill is a herb from which a volatile oil is obtained. This is useful in flatulence or wind in the bowels, colic and stomachache in infants and the aged.

Dose: 2 to 4 teaspoonfuls.

Dill water is obtained from the fruit of *Anethum Graveolus*. It has an aromatic smell.

Dill, anisi, fennel, caraway and coriander are all identical in action. They are powerful carminatives. They relieve the griping of purgatives.

EUCALYPTUS OIL

It is a powerful deodorant, antiseptic and disinfectant. Ten drops added to a pint of boiling water will give off steam that may be inhaled with advantage by sufferers from bronchitis and coryza.

It may be sprinkled about a sick room to purify the air.

It is largely used in the treatment of a common cold in the head and influenza. Sprinkle a few drops in the handkerchief and inhale. It can be applied locally to the head in headache.

It is made into an ointment and rubbed into the skin in infectious diseases.

1 to 3 drops may be taken internally on a lump of sugar.

Eucalyptus is most suitable if used as a spray for coryza and bronchitis.

CHAPTER XXIII

MODERN DRUGS

ANTIBIOTICS

It has long been known that some micro-organisms are capable of interfering with the growth or metabolic activity of other micro-organisms. The substances formed from microbes possessing these qualities are called *antibiotics*. They possess a selective effect upon micro-organisms. Therefore, they cannot be utilized as general agents against microbes.

They are:

1. Penicillin derived from fungus.
2. Streptomycin from actino-mycosis.
3. Aureomycin.

AVLOPOCIL

Crystalline Procaine penicillin (4 lacs unit per cc.). One injection produces an effective penicillin blood level, which is maintained for 24 hours. Supplied in vials of 10 c.c to 1c.c Im. daily.

CRYSTALLINE PENICILLIN G. EYE OINTMENT (Glaxo)

25000 unit of sodium penicillin G. per gm in a special base which assists stability. The high concentration of penicillin is desirable for adequate penetration into ocular tissues.

Crystalline Penicillin G Ointment, 2000 unit Sod. Penicillin G. (Glaxo) used in dermatology.

PENICILLIN G (Crystalline Potassium Salt)

A very stable penicillin salt indicated in head and spinal lesions, including cerebral abscesses, in brain surgery, and for intrathecal and intra-ventricular injections.

PENICILLIN ORAL TABLETS (Glaxo)

Each tablet contains 200,000 units of Sod. Penicillin G. One tablet represents the single dose that might be expected to secure an effective penicillin blood level in adults.

The efficacy of the oral penicillin is contingent to a major degree upon the adequate dosage and maintenance of the drug's stability within the physiological media. Hence buffered penicillin is recommended to counteract the action of the gastric acidity.

Oral penicillin is used in the systematic treatment of infections which are localized or highly susceptible to penicillin. It is a particularly convenient form of administration for children. 10 tablets (Glaxo) tubes are available.

PENICILLIN LOZENGES

Designed for slow Integration in the mouth.

Indications. For local infection of the mouth and throat due to penicillin sensitive organisms.

Lozenges containing the Potassium salt require no refrigeration in any climate.

Issued in containers of 20 and 500.

CRYSTALLINE PENICILLIN G

(Potassium salt)

Oral tablets 50,000 units. Oral penicillin can be used for treatment of mild infections due to penicillin-sensitive organisms particularly in infants under six months. To be taken $\frac{1}{2}$ hour before or 1 or 2 hours after meals every 3 or 4 hours.

PENICILLIN STYPTIC POWDER (A & H)

A mixture of Sod & Calalginatel containing 20,000 units of penicillin per gm. For topical application to arrest haemorrhage in dental surgery and superficial wounds, this is used.

PENICILLIN (P. Aerosol)

Oxygen from pressure cylinder passed through a concentrated solution of penicillin. Useful in bronchial asthma (not due to allergy), chronic bronchitis, lung abscess and other pulmonary infections.

Lately it has been used in chronic and acute sinusitis due to microbic infection.

FLAVOZOLE-C PENICILLIN DENTAL TABLETS

Each tablet contains 15000 inch of penicillin (calcium salt) together with C. Flavozole 0.2.1 For treating septic sockets following extraction a tablet is inserted immediately before the socket fills with blood. Supplied in tubes of 20 tablets.

AUREOMYCIN

Aureomycin is derived from cultures of a mould known as streptomyces aureofaciens. It is very expensive. It is an effective therapeutic agent in various bacterial (gram positive, gram negative) rickettsial and viral infections.

1. In the treatment of infections due to herpes simplex virus, dermatitis herpetiformis and pemphigus.
2. Any infection due to virus (a typical pneumonia).
3. Gonorrhoea.
4. Streptomycin resistant granuloma inguinale.
5. Syphilis.
6. In tropical diseases like Rocky mountain fever.
7. In urinary infections and lymphogranuloma inguinale.

The drug is administered orally. It is well tolerated and relatively not toxic. One gm. every six hours, can maintain satisfactory blood levels. It would appear that the drug should be continued until the temperature is down for several days, and the condition of the patient has improved significantly.

DI-HYDRO-STREPTOMYCIN SULPHATE (Glaxo)

Purified active principles produced by certain strains of streptomyces griseus.

It is a potent anti-bacterial agent of relatively slight toxicity that can be injected intramuscularly or intrathecally or into peritoreal or pleural cavity. It is found effective in influenza, urinary tract infections, plague, bacteraemias and meningitis due to gram negative bacilli.

Also indicated in the treatment of tuberculosis meningitis, acute miliary tuberculosis and certain forms of pulmonary tuberculosis. In the treatment of tuberculosis it appears more promising.

Issued in 1gm. vial. 0.5 gm., morning and evening.

CHEMOTHERAPY OR BACTERIAL INFECTIONS

They are compounds of sulphonic acid and amides. Many compounds like sulphanilamide, sulphacetamide, sulphonamide, sulpha-pyridine, sulphothiazole and sulphathiazole.

The drugs of choice in various infections are as follows:

1. **SULPHANILAMIDE**: In erysipelas, septicaemia, tonsillitis, pharyngitis, laryngitis, empyema, puerperal sepsis, localized septic processes and osteomyelitis of streptococcal origin, *B. coli* and *B. welchii* (gangrene) infections, soft sore and granuloma venereum.

2. **SULPHA-PYRIDINE**: (M. & B. 693). Pneumococcal (pneumonia) septicaemia, meningitis, peritonitis, otitis media, mastoiditis, meningococcal and gonococcal infections.

3. **SULPHOTHIAZOLE**: (Cibazol, etc). Useful in staphylococcal infections (furunculosis), cellulitis, carbuncle, localized septic wounds and osteomyelitis. Can be used also for pneumococcal, gonococcal infections.

4. **SULPHADIAZINE**: Useful in pneumo-meningococcal, gonococcal, streptococcal, *B. coli* and staphylococcal infections.

5. **SULPHO GUANDINE**: Useful in bacillary dysentery (to some extent) for food-poisoning, gastro-enteritis, infantile diarrhoea and cholera.

6. The following infections are practically amenable to sulpha treatment: actinomycosis, pemphigus and undulant fever by the use of sulphathiazole; plague and small pox (sulpha-thiazole and sulphadiazine); influenzal meningitis, and pneumo-bacillary infections (sulphapyridine).

NON-OFFICIAL PREPARATIONS

1. **Prospetasine** (M & B 125): Streptococcal infections of genito-urinary tract. Soluseptasine (5 c.c 5 per cent solution) for infection.

2. **Sulpha-merazine** (I.C.I) in pneumonia, cerebro-spinal fever and haemolytic streptococcal infection.

3. **Urea-sulphaside** (Union Drug Co., Calcutta). Infection due to staphylococci, *B. Influenza*, *B. coli*, *B. Typhosis*.

4. Irgafen (J.R. Gregg, S.A., Basle Switzerland): Bacterial infections of staphylo and strepto meningo and gono. Less toxic and greater therapeutic effect.

PTHALYL SALPHOTHIAZOLE: (Thalazole M.&B.) Choice drug in gastrointestinal infections, acute phase of bacillary dysentery, where sulpho-guanidine is relatively ineffective this may be used.

In surgery of the intestinal tract both before and after operation for the prophylaxis and treatment of peritonitis, faecal fistula, operations such as resection of rectum and colon.

Ulcerative colitis and gastro-enteritis of the new born.

RECENT PHARMACEUTICAL PREPARATIONS

AVLOSULPHON : It has been shown to effect both clinical and bacteriological improvement in cases of lepromatous leprosy. In tuberculoid cases it can achieve a complete subsidence of the activity of skin lesions within six months and of the nerve involvement after a long period.

Dosage: 0.1 gm. daily for the first two weeks, followed by 0.2 gm. daily for the next two weeks. Treatment then is continued with a dose of 0.3 gm., once daily. (tablet of 0.1 gm. available, 1000 tablets one tin (I.C.I))

CHLOROMYCETIN (P. & D.). It is obtained from cultures of a mould known as streptomyces-venezuelae and is now prepared synthetically as well. It is a very effective anti-biotic for typhoid and paratyphoid fevers. One pill to be swallowed with water thrice daily. Temperature is brought down within three days.

CYTAMEN OR MACROBIN (Vitamin B-12—Glaxo 1 c.c. amp. or 10 c.c. vial).

50 mg. or 10mg. per c.c. It is effective in the treatment of pernicious anemia including cases where sub-acute degeneration of the spinal cord is present in other macro-cytic anaemias.

METHIONINE: (B.D.H) One of the essential amino acids. It influences the liver metabolism. Used in the treatment of toxic hepatitis, chronic protein deficiency hepatitis, hepatic necrosis,

hepatic fibrosis, cirrhosis, hepatorenal syndrome. Average dose: 0.5 to 2gm. per day up to 5 gm. in severe cases.

PALUDRINE HYDROCHLORIDE AND PAMAQUIN TABLETS: Indicated in radically curing B.T. malaria. One tablet to be given for 10 days.

P.A.S. (PARAMISAN): Supplied in the form of powder, granules, for oral administration. Used in the treatment of tuberculosis along with streptomycin. Orally 18gm., daily in six divided doses with fruit juice.

HATRAZAN: Effective drug in the treatment of filariasis. The action is exerted against the micro-filariae while its action on the adult worms is slight. 1 mg., per kilo body-weight, twice daily by mouth. The second dose can be given by 8 or 9 p.m, when micro-filariatide is rising.

RADIO ACTIVE IODINE: Is successfully used in Carcinoma of thyroid.

RADIO ACTIVE PHOSPHORUS: Is recently used in the treatment of leukaemia and agranulo Cydosis.

(Note: Please consult your physician before using any of the above drugs.)

CHAPTER XXIV

MATERNITY AND CHILD WELFARE

If the expectant and nursing mothers are healthy and strong we will have a healthy and strong nation or race. The object or aim of maternity and child welfare is to reduce mortality and ill-health and to improve the health and well being of the mother and child and through them the health of the race or nation. Children are the future citizens of the country. If they are healthy and strong they will contribute much to nation-building and prosperity of the country. Hence prenatal and natal and postnatal clinics, maternity and child welfare centres are needed in every taluk, district and important towns.

The infant mortality rate in India is 150 per 1000 registered births. The maternal mortality in India is 25 per 1000 registered births.

Every girl should possess an elementary knowledge of hygiene, medicine, psychology, anatomy, midwifery, Gynaecology, household remedies, science of dietetics, domestic hygiene and the knowledge of children's welfare. Then alone she will enjoy a happy home. Then alone she can take care of her children and bring them up properly. She can save unnecessary doctor's bills. She can look after her husband's health and nurse her children properly. She can avoid all complications during the period of confinement.

Living in overcrowded and ill-ventilated houses, poverty, and ill-balanced diet affect the general health of the mother and lead to high maternal and neonatal mortality rates. The chief causes of maternal deaths are puerperal sepsis, anaemia or poverty of blood and toxæmias. If proper prenatal, natal and postnatal care is taken the maternal mortality can be efficiently controlled.

Nursing and expectant mothers should take abundant nutritious food because they have to provide nutrition for their children. They should take plenty of milk as they have to provide calcium for the development of the bones of their children.

If they fail to do so the children will develop rickets. They themselves will suffer from osteomalacia, the disease of bones.

A pregnant woman should be examined thrice—once in the 4th month, for the second time in the 8th month for finding out the nature of presentation of the child and for the third time in the 9th month to find out if there is any disproportion between the head of the child and the pelvis.

The pregnant condition lasts from 275 to 280 days or 40 weeks. The sign of pregnancy are morning sickness which starts about one month after conception, cessation of the monthly flow or menses, enlargement of the breasts, dark appearance of the nipples and the breast, enlargement of the abdomen, quickening or movements of the child felt about the fourth month, pulsation of the child's heart,—heard about the fifth month, movements of the child which may be felt externally after the sixth month on placing the hand on the belly and capricious appetite and longing for special and improper diet.

A pregnant woman should not lift up very heavy things. She should avoid sudden strains or shaking of the abdomen, because the womb may be excited, miscarriage may take place. She should not sleep in an ill-ventilated room. There is greater demand for fresh air, because there is the growing child in her womb. She should not take drastic, powerful purgatives as they will excite the womb. She should not take any intoxicating drugs such as opium or cannabis indica as they will affect the brain cells of the child. She should not take quinine even if she gets fever as quinine may cause abortion.

Castor oil is the best opening medium during pregnancy as it is quite harmless and non-irritating. The sights of disgusting objects should be avoided by pregnant women. She should study religious scriptures and keep the pictures of saints and gods in her bed room. A pregnant woman should keep herself in a closed room during the period of eclipses. If she comes out during eclipse the child may suffer from deformity of limbs or may become blind also.

A healthy woman should suckle her child. Suckling the child prevents conception upto the tenth month. It prevents the ruin of the mother's constitution by too rapid child-bearing.

Hand feeding is the source for infantile diseases and mortality. Hand-fed children are not so strong as breast-fed infants. They are more liable to diarrhoea, convulsions, rickets, etc. Further they do not recover from diseases so rapidly as the breast-fed.

Until the first teeth appear no other food than milk should be given. After this period some kind of malted food may be given cautiously in small quantities and at first only once daily.

The child should not be weaned until it has attained the age of one year and then only if the child is strong and healthy.

APPENDIX A

HOME REMEDIES (CHEST)

1. DRESSING

Absorbent cotton wool
Adhesive plaster on spool
Bandages: width one, two or three inches
Boric lint for fomentation
White lint for the spreading of ointment.

2. FOR EXTERNAL USES

Acetic acid
Alum powder
Antiphilogestine
Boric powder
Dettol (disinfectant)
Emulsion of airflavine in liquid paraffin
Hydrogen peroxide
Linseed meal
Methylated spirit
Olive oil
Permanganate of potash.
Soft Vaseline
Tincture of iodine
Turpentine liniment
Zinc oxide

3. FOR INTERNAL USES

Aromatic spirit of ammonia
Aspirin tablets
Castor oil
Cathartic vegetable tablets
Chlorodyne
Cough mixture
Dover's powder

Easton syrup
Essence of ginger
Essence of peppermint
Eno's fruit salt
Glycerine
Honey
Liquid extract of cascara
Mag sulph.
Milk of magnesia
Paludrine tablets
Penicillin lozenges
Peregoric elixir
Quinine tablets
Senna pods
Sodii bicarbonate
Syrup of figs
Subnitrite of bismuth
Tincture quinine ammonia

4. APPLIANCES

Clinical thermometer
Douche can
Enema syringe
Eye dropper
Safety-pins

APPENDIX B

TEMPERATURE

Normal temperature	97 to 98 degrees Fahrenheit
Subnormal below	97
Collapse	95
Febrile	98.4
Moderate fever	100 to 103
High fever	104 to 105
Hyperpyrexia	above 106
Very high and very low temperatures are dangerous.	

APPENDIX C

INDIAN WEIGHTS AND MEASURES

4 Dhans	1 Ratti
8 Rattis	1 Masha
12 Mashas	1 Tola
5 Tolas	1 Chatak
16 Chataks	1 Seer
40 Seers	1 Maund
27.2 Maunds	1 Ton

DOMESTIC WEIGHTS

$\frac{1}{2}$ Kancha	$\frac{1}{8}$ Chatak	1 fl drachms
1 Kancha	$\frac{1}{4}$ "	2 fl drachms
$\frac{1}{2}$ Chatak	$\frac{1}{8}$ Pao	1 fl ounce
1 "	$\frac{1}{4}$ "	2 fl ounces
1 Pao	$\frac{1}{4}$ Seer	8 fl "
4 "	1 Seer	32 fl "

DOMESTIC MEASURES

A teaspoonful	1 fl.dr	4 c.c
A dessertspoonful	2 fl.dr	8 c.c
A tablespoonful	$\frac{1}{2}$ fl.oz	15 c.c
A wine-glassful	2 $\frac{1}{2}$ fl.oz	75 c.c
A tea-cupful	5 fl.oz	150 c.c
A breakfast -cupful	8 fl.oz	260 c.c
A tumblerful	10 fl.oz	300 c.c

WEIGHTS OF COINS

1 Silver rupee	180	grains
1 " eight-anna bit	90	"
1 " four-anna bit	45	"
1 " two-anna bit	22.5	"
1 Nickel four-anna bit	104	"

1	"	two-anna bit	88	"
1		Bronze pice	100	"
1	"	half-pice	50	"
1	"	1/3 pice	30	"

OM TAT SAT



About This Book:

The divine grandeur and majestic beauty of leading an ideal spiritual life lies in the active interest that a spiritual aspirant takes in serving all humanity with Atma Bhava or Narayana Bhav. This the Sage of Ananda Kutir preaches silently through his own practical exemplary living.

Of the various types and modes of service that can be rendered to the ailing humanity—morally, mentally and physically ailing humanity, medical service stands above all others, for, has it not been said *Mens Sane Corpore Sane*, has it not been asserted beyond doubt *Sareeramadyam Khalu Dharma-sadhanam*! As such, viewed from all quarters physical well-being is an essential and foremost pre-requisite for pursuing any walk of life. Bringing out this noble ideal and truth through his various activities, Sri Swami Sivanandaji has in addition to publishing the monthly journal "Health and Long Life" already given us a number of books on health and on medical subjects. As his boon to the suffering humanity, Sri Swami Sivanandaji's work 'Home Nursing' is presently published.

Needless it is to point out that the books published in this series are written to educate the laymen.

May the 'Home Nursing' find its way into all household and be a sincere guide and divine healer!



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